BABUNGO: A STUDY OF IRON PRODUCTION, TRADE AND POWER IN A NINETEENTH CENTURY NDOP PLAIN CHIEFDOM (CAMEROONS)

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ABSTRACT

A survey of smelting debris undertaken in BABUNGO brought to light what is to date the largest single recorded centre of iron production in sub-Saharan Africa. High output in the 19th century was facilitated by innovation in furnace structure that enhanced capacity and brought in economies of scale along with changing fuel usage that enabled the intensification of production by a sedentary industry set within a grasslands environment. Elsewhere in the region separate smithing and smelting using older, smaller furnaces exploiting traditional fuels and ores collapsed and in its place arose a devolved technology centring on recycling of slag in simple open hearth furnaces.

The enormous output of the BABUNGO industry was linked to a mode of labour recruitment and division of rewards that overrode the boundaries of the kin group. At the point of establishment of the foundry and throughout its operation non-kin freely offered their labour in return for access to the foundry. A pervading ethos of cooperation and stress on the sharing of the product in terms of a familial paradigm provided for the social validation of the accumulation of wealth by individual descent group heads.

The distribution of products was characterised by periodic markets, organised trading groups, use of convertible currencies, credit and commissions. The heavy costs of transporting ironware to regional markets was largely taken over by specialist trading chiefdoms that clustered around BABUNGO. Unencumbered by these costs output rose to even higher levels. The great material wealth generated by iron production was further enhanced by the highly profitable conveyances to be made between continental and coastal spheres of trading activity that abutted on the Grassfields.

The political organisation of BABUNGO offered only limited opportunity for conversion of wealth into political authority. The integrity of the chiefdom barely withstood the internal pressures generated by the enormous wealth derived from iron production but was bolstered by an external alliance undertaken by an astute FON with the vanguard of German colonisation.

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PREFACE

This dissertation represents the culmination of research carried out intensively in the Ndop plain chiefdom of BABUNGO and to a lesser extent in the surrounding chiefdoms of BABA[1], BAMUNKA and OKU over a short period in 1975 and fifteen months in 1977-1978. It is intended primarily as a contribution to the general area of studies of pre-colonial sub-Saharan iron working and also to throw further light on the economic and political history of the Grassfields of Cameroon.

A permanent base was maintained in BABUNGO where an intensive survey and investigations of smelting debris and furnace structures were carried out both within the boundaries of the 19th century entrenched settlement and also in a wide arc of the surrounding countryside and neighbouring chiefdoms. The physical evidence provided by the survey was combined with oral data gathered from elderly informants formerly active in iron production and trade to allow for a limited reconstruction of the main features of the BABUNGO iron industry as it existed at point of contact and into the first years of the present century. In order to establish the distributional context of BABUNGO iron production it was necessary to undertake research in the neighbouring chiefdoms of BABA and BAMUNKA which, along with the chiefdoms of BANGOLAN and BAMBALANG formerly resident adjacent to BABUNGO, had largely taken over the transportation of BABUNGO ironware out of the Ndop plain at the end of the nineteenth century. Further enquiries were undertaken in OKU with the goal of gathering data on OKU iron production which centred on the use of an

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[1]. BABA refers here to the PAPIAKUM chiefdom expelled from BAMUM in the 19th century that took refuge in the Ndop plain and finally came to settle on a promontory overlooking the plain immediately to the east of BABUNGO. It should not be confused with the NGEMBA chiefdom of BABA, also called MBA or ALATENING, which will not be dealt with in this dissertation.

open bowl furnace to recycle slag produced in earlier clump furnaces. This was necessary in order to analyze the comparative productivity of the two most intensive Grassfields iron industries operative at the end of the 19th century. This was further intended to illuminate those economic and technological factors relevant both to the widespread cessation of the large scale mode[2] of production and concomitant devolution to a recycling industry, such as OKU, and also to the emergence of BABUNGO, retaining the large scale mode of production, as, perhaps, one of the largest single centres of iron production in sub-Saharan Africa in the 19th century.

While in no case was the FON or palace a significant source of information on these matters, in each chiefdom the FON was instrumental in providing access to both potential research assistants and elderly informants with useful knowledge. The passage of time dictated that such informants were relatively few in number but in all cases informants selected for their age and special knowledge were willing to pass the researcher on to other surviving members of their age set and those of the immediately following sets. The dearth of informants meant that conciliar interviews were not possible and instead individuals were befriended and interviewed intensively and repeatedly concerning their special area of knowledge.

Some eight decades after contact and thirty years or so after the complete cessation of iron smelting it is unlikely that the work of one individual, albeit based on good data from knowledgeable informants and the hard evidence of the forms and distribution of smelting debris, would provide much more than a hypothetical reconstruction of a single economic, technological and social phenomenon.

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[2]. The phrase "large scale mode of production" refers to those industries characterised by separate smithing and smelting by different personnel in separate work places. It is not intended to imply anything concerning the actual scale of production in terms of levels of output.

This is more especially the case since the nature of this particular phenomenon, a small chiefdom producing enormous volumes of iron for external markets, demands a regional context. The economic or distributional dimension of this has been sketched out on the basis of research in nearby chiefdoms that undertook a specialist trading role vis à vis BABUNGO iron production. Understanding of the technological dimension has been facilitated by the compositional analysis of material samples by Zacharias, by access granted by Jean-Pierre Warnier to his fieldnotes and photographs on iron working in BAMESSING and the smaller centres on the western edge of the Ndop plain and by his cooperation in the joint excavation of the site at BAKWANG. Elucidation of the context of the political economy of the Grassfields at the end of the 19th century and the early period of German colonial administration has been greatly facilitated by access kindly given by Sally Chilver to her own fieldnotes and archival materials and also to those of Phyllis Kaberry who undertook research in the area in the 1940s, 1950s and 1960s.

It is unfortunate that at the point in time that this research was undertaken it was not foreseen that a technological revolution in personal computing and printing facilities would enable the accurate orthographical representation of vowel and consonant values in the presentation of this work. Accordingly, only a simplified orthography, in use by S.I.L. workers in BABUNGO at the time of the research, was adopted and this was reduced even further in the initial period of writing up in line with the printing facilities available at that time and tones have been omitted altogether. It is not at present possible to improve matters retrospectively although it is hoped that this situation will be rectified in subsequent publications in the light of recent work by Schaub[3] on the

BABUNGO language.

The structure of this dissertation will almost certainly offend the sensibilities of a copy editor. Passages on history and aspects of trade, for instance, are not neatly parcelled up into discrete sections dealing with each topic in turn. In one sense this is the way the material presents itself but it also represents an uneasy compromise between the problems of dealing on the one hand with a dualistic presentation of timeless technology and the political and economic history of one small area of sub-Saharan Africa and on the other a straightforward historical narrative accounting for the particular technological and economic phenomenon of the extraordinary levels of output of iron achieved by BABUNGO in the last century. The central goal of this research is to throw light on those factors that influence levels of output of sub-Saharan iron industries by examining an extreme case characterised by very high levels of output. The central theme that emerges in the course of the dissertation is the notion of iron production as a metaphor for the mystical bases of power that underpin much of the political and ritual elements of life in precolonial Grassfields chiefdoms. If, through reading this, those with particular expertise in the technological aspects become interested in the historical, economic and political facets and conversely those versed in the latter become interested and informed in iron production and its wider connotations the exercise will not have been altogether pointless.

I must acknowledge academic debts to Jean-Pierre Warnier for his help in the field and support in the completion of this research; also to my original supervisor Nicholas David and to the late Phyllis Kaberry for their advice and encouragement; also to Mike Rowlands for his unfailing patience and enduring interest in the final supervision of this work. I offer special thanks to Sally Chilver whose kind concern, critical comments and stimulating discourse have greatly promoted the completion of this work. She has also provided many of the translations from the German in this text but bears no responsibility for their transcription. I would also like to thank Christraud Geary for her help and interest and David Killick for his comments on draft sections on the technology of iron production.

Friends, informants and helpers who made my stay in the Grassfields both pleasurable and fruitful are too numerous to mention individually. However, a special word of thanks is due to Emmanuel Nshuwo, the titular queen mother of the present FON of BABUNGO, whose pivotal position in the political and ritual life of the chiefdom opened many doors that would otherwise have remained undiscovered let alone unopened.

Finally, I must acknowledge an enormous personal debt to my mother and father for their material support during the second period of privately funded fieldwork[4] and also to my wife Kathryn Ann Szent Györgyi and two children John and Sarah without whose enduring patience and support the writing up of this dissertation would not have been possible.

[4]. The initial research was assisted by a grant from the Social Science Research Council.

INTRODUCTION

General

Low levels of productive economic activity, self-sufficiency or production for exchange of use values represent the expected conditions of non-industrialised societies. This view has tended to converge with notions of the tribe or village as island universes with discrete and coterminous ritual, political and economic systems and, hence, suitable subjects for synchronic study. The Grassfields societies of the late nineteenth century, with economies characterised by intensive local specialisations not closely linked to ecological constraints, and highly diverse and elaborate political and ritual systems based on a core of common elements, most certainly do not fit these stereotypes.

In all spheres, bar language, the lines which mark off one group from another do not constitute barriers enclosing isolated domains of activity. In areas such as the northern Ndop plain where individual chiefdoms were physically bounded by defensive entrenchment and separated by tracts of unoccupied land, the actual composition of populations reflected a multiplicity of diverse origins arising from a host of small scale movements between groups. Even the notion of discrete linguistic identity is essentially an ideological one, concealing the multilingual nature of social groupings whose formation is largely composite and linguistically diverse[5].

A distinct regional economic complementarity is signalled by the very high degree of local specialisation[6]

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5. Warnier, 1990.

6. "La spécialisation économique locale était poussée au point que l'approvisionnement de chaque chefferie

in production of vital commodities such as palm oil and ironware. One chiefdom, BABUNGO, produced over 100 times its annual requirements for ironware but virtually no palm oil, a "social" commodity vital, in bridewealth, birth, and entry fee payments, for the material and social reproduction of the society. Similarly, those palm oil producing groups on the margins of the Grassfields made no ironware but acquired it in regional networks of exchange and trade for palm oil.

There are indications of important relations of ritual and political interdependence between Grassfields chiefdoms. At the highest level relations between chiefs were dynamic, competitive and yet mutually supportive. On the one hand, competitive gift exchanges served to determine their relative ranking in the regional hierarchy of power and prestige. On the other, there were many instances of specific ritual interdependency between chiefdoms of the Ndop plain, between OKU and NSO' , and others, as well as a general set of conditions that required the mutual validation of the chieftaincy office both in the exchange of goods reserved to those of this rank and also in mutual attendance at major ritual and ceremonial occasions.

How should one approach the analysis of systems such as these? They are clearly not island universes fit to be studied in isolation but rather require a combination of micro and macro analysis set in the context of regional structures and historical change. The best of the work done in the Grassfields illustrates the most viable approach, ie. to start on the basis of a micro study of one community and use the grounding got from this to work out toward the regional political and economic context. This typifies the work of Kaberry and Chilver whose seminal studies of the ethnography and precolonial history of the Grassfields were based on the close study of a single chiefdom, NSO' . Similarly, the work of Warnier on regional structures of hierarchy and exchange that influence the particular socio-economic formations of individual chiefdoms rests largely on an earlier intensive study of the ethnography of a single chiefdom, MANKON.

The present research builds on an intensive study of the technology and organisation of iron working in BABUNGO and then moves out to seek the key relationships and factors at regional level which may have served to promote this production. Hence, it follows in the tradition of earlier ethnographic work but sets a narrower range of focus in dealing primarily with technology. It represents a potentially innovative ethnographic exercise in attempting to present an ethnographic account that primarily focuses on iron working but combines a novel assembly of different elements of anthropological enquiry, i.e. material culture, technology, economy, politics, ritual and religion together with a regional and historical perspective on political economy, not usually brought together. Dealing primarily with production in this way permits the discussion to encompass a number of different levels of enquiry including the nature of the technology employed, mystic notions of transformation, trade and exchange, as well as the political context of production. This is an attempt at ethnographic reconstruction which reaches beyond mere technology and strives for wider linkages with political, ritual and economic structures at both local and regional levels. In brief, the goal is to throw further light on the 19th century regional economic and political history of the Grassfields through a detailed account of the development, organisation and processes of iron production in one chiefdom.

The study of BABUNGO iron production is based on original data gathered from four main areas of enquiry. Firstly, oral data gathered in the course of interviews with elderly informants who nce participated in production, trade and politics. Secondly, census data gathered from similar sources on descent group titles, occupation and wealth. Thirdly, early German exploration literature and

German and British colonial accounts. Fourthly, data from surveys of smelting debris, distributions of furnace structures, entrenchment, settlement and palace sites, and also from the laboratory analysis of material samples, tuyère fragments, slag, ores, etc., gathered in the field.

The presentation of the regional and historical context of BABUNGO iron production depends very heavily on secondary sources, most especially the fieldnotes and later publications of Jeffreys, Kaberry, Chilver and Warnier. It is hoped that this work represents a small increment to the major work undertaken by these authors, to which the reader is directed for any further background reading on the ethnography, history and political economy of the wider region[7].

Based on fieldwork undertaken in the 1940s, 50s and 60s, Chilver and Kaberry[8] presented the first detailed and reasoned account of the ethnography and precolonial history of the Bamenda Grassfields. They demonstrated the diversity of the region's political and social formations, set within a group of closely related languages and based on a common core of elements, which ranged broadly from the acephalous META' to the highly centralised polity of NSO' . They also highlighted the apparent anomaly of co-existent matrilineal and patrilineal groupings that were not only contiguous but also closely related in linguistic and cultural terms. Significantly they also pointed to the lack of congruence between claimed TIKAR and NDOBO origins and observed linguistic and ethnic affiliations and

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[7]. Schmidt, 1940, 1942, 1943, 1951 and 1955; Jeffreys, 1945, 1947, 1948, 1952, 1957, 1961, 1962, 1963 and 1964; Hurault, 1955; Chilver, 1961, 1963, 1967 and 1973; Chilver and Kaberry, 1968, 1970 and 1971; ; Kaberry, 1952, 1959, 1962 and 1969; Kaberry and Chilver 1960, 1961, 1962 and 1967; Warnier, 1975, 1983 and 1984; Warnier and Fowler, 1979; Warnier and Rowlands, 1988; Tardits, 1960, 1970, 1971, 1973 and 1977; Brain, 1972 and 1973; Dillon, 1973 and 1979; Nkwi, 1976; Geary, 1979, 1983 and 1985; Rowlands, 1979, 1985 and 1987.

[8]. See note above.

stressed the social and political functions of foundation myths.

This latter point represented a much-needed corrective to the fieldnotes and publications of Jeffreys whose earlier voluminous enquiries into clan and chiefdom origins tended to take little or no cognisance of the sociological context of statements he collected. Nonetheless, Jeffreys created a rich body of data to do with clan histories and iron working, the more noble aspects of which he took great interest in, over a number of decades during which he served as a colonial administrator.

Turning to more modern work, Warnier and Rowlands[9] have shown how these societies may be considered to operate as prestige systems dependent on an external world for exotic goods whose control by seniors permitted the reproduction and elaboration of political and ritual roles. Warnier, in his most recent publications, has, with broad brush strokes, described the regional economic and political structures of exchange and hierarchy that have influenced the precise socio-economic formations of individual chiefdoms. The works of Tardits on BAMUM, and Hurault and Brain on the BAMILEKE, provide the wider Grassfields ethnographic and historical framework.

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[9]. Rowlands, 1979. Warnier, 1975 and 1983.

The Setting

The Ndop plain is a densely settled and fertile region that lies at the heart of the Cameroon Grassfields and covers an area of approximately 338 square miles. It is surrounded on three sides by highlands that set it off from the western Bamenda plateau, the high lava plateau to the north and BAMUM to the east. To the south large areas of swamp from the poorly drained NUN river constitute an imprecise boundary with the northern BAMILEKE area.

The three chiefdoms of BAMESSING, BABUNGO, and BABESSI are similarly located over an altitude range from 1160-1200 metres. Each exploits ecologically diverse tracts that include raffia swamp forests, providing a rich source of building materials, fibres for bag weaving, charcoal and raffia wine; the intensively cropped colluvial and upper alluvial soils, on which settlement is actually located and interspersed; and the foothills of the escarpment which provided hunting tracts, kaolinite and iron ores for smelting, charcoal, and grazing for herds of dwarf short-horn cattle, and roofing grass for thatching.

Female cultivators provided the bulk of the foodbase while males dealt with tree crops, livestock and most craft production. Each compound is surrounded by a heavily cropped series of garden plots but individuals may also have up to half a dozen widely dispersed farms representing ecologically diverse zones of cultivation some of which are able to sustain almost continuous cultivation[6]. The chiefdom of BABUNGO regularly exports surpluses of maize to its northern neighbours largely in return for small livestock.

The history and political institutions of the chiefdoms of the Ndop plain illustrate a number of themes common to the wider Grassfields region. Oral traditions recount the dramatic impact of mounted raids in the 18th and 19th centuries. The expansion of the neighbouring state of BAMUM in the mid-19th century led a number of refugee groups to seek new settlement in the eastern part of the plain. An intrusive CHAMBA chiefdom, BALI KUMBAT, established on a fastness overlooking the western edge of

6. Hawkins and Brunt, 1965.

the plain, initially displaced nearby groups which appear to have resettled under varying degrees of submission to the CHAMBA chiefdom. Further pressure from BAMUM in the second half of the 19th century led the chiefdoms of BANGOLAN, BABA, BABESSI and BAMBALANG to seek refuge in the vicinity of BABUNGO in the northernmost part of the plain, seemingly just out of range of BAMUM predations. At this point these chiefdoms either undertook or elaborated a pre-existing role in transporting BABUNGO ironware to markets in the wider region.

At contact the northern Ndop plain communities were compact densely populated "bourg" settlements set within large scale defensive entrenchments. These were highly elaborate and centralised polities in which political and ritual titles, although vested in patrilineal descent group headships, centred on participation in the life of the palace of the FON and the regulatory association, termed variously TIFWAN, KWIFO, or NGWASE, which itself subsumed a host of political, social and ritual sub-associations.

Chieftainship was "sacral" rather than "sacred", ie. it was the office that was sacred not the incumbent, and organised around the "palace" as a corporate institution based largely on the exploitation by the FON of his extensive rights to take in marriage, or as wards, the unmarried commoner females of the chiefdom. There existed strong social distinctions between "royal" and "non-royal", titled "commoner" and untitled "commoner", and slave and free born categories of the population.

The chiefdoms of BABUNGO and BAMESSING appear to share with BAMBUI, BAMBILI and BAFRENG a title system that, while in appearance strongly hereditary, may be better characterised as a strictly limited set of titles linked to the allocation of political authority and ritual powers. The apparent crystallisation of the title system may be linked to the concentration of powers in the regulatory associations of these chiefdoms. The strongly centralised bundles of power associated with these associations comprised governmental, judicial and chiefdom wide ritual functions as well as conflict resolution, pollution removal and executive roles.

It is a measure of this concentration of powers that, in the northern Ndop plain, at least, these associations were able to depose FONS and to influence succession to descent group headships in which their own senior titles were vested. The TIFWAN association in BABUNGO was like a "shadow" palace that, while closed and secret, largely controlled what was going on both in the palace and in this chiefdom through intermediary agents such as ward-heads, titled seniors and the officers and maskers of the association. While it is undeniable that these chiefdoms represent kin-based societies with political associations that serve to control and mediate relations between descent groups of diverse origins, it does appear that in this area they have begun to take on an independent life of their own. By the end of the last century some of the most politically and ritually powerful members of the most senior titleset within TIFWAN had no descent group of any substance and equally the heads of some very substantial descent groups had no access to title or authority within TIFWAN. The high degree of the concentration of powers is linked in this thesis to the on-going and interactive development of intensive productive specialisation and the managerial requirements for the differential allocation of access to the material resource base this engendered.

In BABUNGO, residential areas were administered by ward-heads who in only a very few instances represented descent group heads overseeing a localised clan. In most cases ward-heads administered composite groupings that included a large part of their own descent group along with groups attracted to settle in the chiefdom in the 18th and 19th centuries. The compounds that made up these wards varied in size enormously. A large compound might typically be occupied by the lineage head, his wives, children and slaves, and his dependent brothers and sons together with their wives and children.

In BABUNGO approximately two thirds of the male population were intensively engaged in iron smelting and the remainder were specialist smiths producing ironware largely for external markets. A compound head took all, or most, revenues from the sale of products but in turn provided his sons and junior brothers with wives and material necessities. Wealth acquired through the exchange of these products was used initially to acquire those items of specialised production not made locally, especially palm oil, and only then for bridewealth payments and investment in the political sphere of fees for membership and rank in male associations. It was also invested heavily in the acquisition of slaves. Males slaves, along with freeborn dependent males, were directed to work in iron production and females to increasing the foodbase through cultivation and the labour force through reproduction. Other chiefdoms in the plain tended either to specialise in craft production, such as fine wood-carvings or ceramics, or else undertook specialist middleman trading roles based on transporting BABUNGO ironware to regional markets.

The regional pattern of specialised production for trade has been described in depth elsewhere[7]. Warnier's reconstruction of an archaic economic model for the Western Bamenda plateau rests on the premise of the Ricardian notion of comparative cost advantage that specialised production and exchange between complementary producers would engender. On the geographical and linguistic margins of the Grassfields, low value, high bulk palm oil is produced while at the centre, ie. the Ndop plain, low bulk, high value craft items such as ironware, fine pots, caps, etc. are made. Overall, items of specialised production appear to be ordered in space as a function of their transportational costs relative to palm oil sources[8].

This model holds true at the end of the 19th century for the western Bamenda plateau which Warnier considers to

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[7]. See Warnier, 1975, 1983 and 1984.

[8]. "L'huile de palme était produite dans les basses terres de la périphérie, et échangée sur les hauts plateaux contre des tubercules, des grains, du petit bétail et des produits de l'artisanat. La localisation des productions se faisait de la périphérie au centre *grosso modo* selon l'ordre mentionné ci-dessus, en fonction des distances croissantes par rapport aux palmeraies, et du rapport poids/valeur des marchandises transportées en vue de l'échange. Cette specialisation s'est operérée vraisemblablement selon les termes de la loi ricardienne des coûts comparés..."
Warnier, 1984.

have been brought late into the wider sphere of long-distance (in this case European coastal) trade. To the east and north of the Ndop plain, however, this archaic model for the spatial ordering of local specialised production appears to have been overlain by somewhat variable modes of articulating local production with regional and long-distance trade networks consequent to the emergence of the highly centralised state of BAMUM and the expansive NSO' polity. Nevertheless, there is evidence' in the oral traditions of the latter two groups, over and above the plain distribution of palm oil "belts", that the exchange of low bulk, high value iron at the centre of the region for high bulk low value oil produced at the margins was a key principle in organising regional production and exchange at an earlier point in time.

Wealth accumulated in local and regional trade was used to acquire prestige goods from long distance trade networks largely to the political and demographic advantage of those chiefdoms that lay between the geographical centre of iron production and peripheral zone of palm oil production. The profits of middlemen from regional trade and developed entrepreneurial skills enabled the accumulation of wealth that could be exchanged for prestig ous long distance trade goods that in turn allowed them to manipulate gift-exchange relations between different chiefs and seniors and so to dominate the regional political hierarchy of chiefs and expand at the expense of those less well placed to acquire these prestige goods.

'. For instance, in his "Tribal Notes" Jeffreys records an NSO tradition that the ancestor of the "Great Councillor" was trading BABUNGO hoes for NSUNGLI palm oil when he came upon the "lost prince" that he "saved" and so provided the chiefdom with a FON. This is not an instance of a "reverse reflection" of more recent historical phenomena casting a light back on the more distant past since at the end of the 19th century OKU appears to have been the major supplier of ironware to NSO and palm oil from NSUNGLI sources represented only a small fraction of Ndop consumption.

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Thesis Outline

The thesis is divided into five parts comprising a general introduction followed by individual sections on iron working, trade and politics, and a conclusion. Fifteen appendices provide data on furnace distributions, debris volumes, descent groups, occupations, titles and the laboratory analysis of material samples. An extensive bibliography covers all cited references and is intended to include most of the background reading as well.

The introduction outlines the broad themes and goals of the research, briefly introduces the historical and ethnographic literature on the Grassfields and discusses the range of approaches to an understanding of factors influencing levels of output of sub-Saharan African iron producers. BABUNGO is presented as a case study exemplifying a precolonial iron industry characterised by relatively high levels of output. The historical context of iron production is presented in terms of its extent and antiquity in the wider Grassfields region. Evidence is put forward for the seemingly convergent trends of concentration at the centre of the region of the few persisting large scale industries and the adoption elsewhere of the smaller scale recycling of old slag.

Elements of the 19th century history[10] and political economy of the Ndop plain are examined in so far as they may have influenced the scale of iron production. The themes of strategic pressure on the Ndop plain from large and powerful neighbours together with the structural problems created by the contiguity of the compact

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[10]. This historical introduction is presented at this point in the dissertation for two reasons. Firstly, the periodisation of early raids into the Ndop plain is essential to the development of an argument that attempts to periodise the emergence of the developed BABUNGO furnace type to which discrete sets of measurable debris can be linked and whose implantation is attributed to a descent group head displaced by these early raids. Secondly, the nature of the impact of these raids and the later settlement of BALI KUMBAT on the western edge of the plain has formerly been given an instrumental role in the emergence of BABUNGO as the major Grassfields centre of iron production in the late 19th century. This question is reassessed and much greater weight is now given to the significance of endogenous changes in the regional factors of production.

patrilineal chiefdoms of the Ndop plain with the large expansive matrilineal chiefdom of KOM immediately to the north are also developed. The pertinent case of neighbouring BAMESSING will be examined in terms of the convergent technological, economic, strategic and historical factors that account for its abandonment of large scale iron production at or around the time that maximum BABUNGO output levels were attained, ie. c.1880. Finally, an outline chronology is presented for the period 1780-1930.

The following sub-section presents the physical evidence for innovation in furnace structure with reference to four sites where structures appear to illustrate areal stages in the emergence of the developed furnace type associated with the enormous levels of BABUNGO output in the 19th century. It is argued that it is possible to differentiate debris associated with the earlier from the more recent furnace types on the basis of examination of furnace structures and that the association of discrete volumes of smelting debris with identified furnace structures allows meaningful inferences to be drawn regarding relative levels of output. Using these data, an approximated estimate of average annual output levels for the developed BABUNGO furnace type is made and linked to an estimate of the potential regional demand.

The second main section of the thesis focuses on an oral reconstruction of the techniques of iron production in BABUNGO. Smelting is covered in four sub-sections relating to the capital costs of establishing a foundry, the smelting process and associated labour costs, modes of marshalling and rewarding labour and the framework of beliefs and values in which smelting took place. Smithing is similarly treated. These two conceptually, economically and technologically distinct arms of production are drawn together in sub-sections dealing with political, ritual and economic integration. In order to provide a comparative framework for an understanding of the scale and success of the BABUNGO iron industry, data gathered on the neighbouring OKU open bowl recycling industry are also presented.

In concluding this section the high productivity of the BABUNGO industry relative to other Grassfields iron industries is stressed and related to the advantages that accrued in respect of the development, interlinked with the rising momentum of production, of the organisation of labour and the particular modes of access granted to specialist skills and capital equipment. Further, the precise mode of specialisation exhibited by the BABUNGO industry is considered in terms of the greater articulation with the wider market it offered. Comparison of the OKU and BABUNGO industries throws further light on the seemingly convergent phenomena of the regional cessation of large scale production in favour of a condensed recycling industry exploiting debris produced by the earlier large scale industry and innovation at the centre of the region characterised by the development of the advanced BABUNGO furnace type.

The third section of the thesis describes the regional system for the distribution of locally produced commodities and exotic trade goods in terms of periodic markets, specialist traders, credit and commissions, the use of convertible currencies and the major trade imports that flowed into the Ndop plain in return for exports of ironware and other craft items. The significance of the reinvestment of wealth, derived from the exchange of BABUNGO ironware for young male slaves who were assimilated into the labour base for iron production, is also stressed. Similarly, the importance of the absorption of female slaves in terms of food production, demographic increase and concentration of wealth in bridewealth rights over wards is observed. The key role undertaken by specialist trading chiefdoms in taking over the transportational costs of production is examined in terms of the greater output levels this permitted BABUNGO to attain as well as the wealth created on the basis of investing profits from the trade in the high value, low unit bulk commodity, viz. ironware, into very highly profitable conveyances between continental and coastal spheres of long distance trading activity. Finally, the limitations on inferences that may be drawn from data on exchange rates imposed by implicit margins of error are discussed in relation to attempts at quantitative analysis of exchange rates and profitability expressed in terms of labour costs.

The fourth section of the thesis deals with the political context of production in two areas. This is considered, firstly, in terms of the potential that the system offered for the conversion of wealth gained from production and trade into title, office and prestige, and secondly, in terms of the regional structures of ritual and political hierarchy expressed in alliances and gift exchanges between chiefs.

The internal political organisation is dealt with in a discussion of the nature of chieftainship and its relation to TIFWAN, the regulatory association, and its relations in turn with the residential associations of the chiefdom with respect to where authority lay and how it was acquired. On the basis of census data on individual descent group affiliations, occupations and titles linked to discrete smelting debris volumes, inferences are drawn regarding the congruence of wealth, as evidenced by smelting debris, and access to power and authority, as shown by titles or offices vested in descent group headships. It will be shown that there was little potential for the creation of new nobility in a political system that may be characterised as a strictly limited set of positions, almost crystallised in its rigidity, offering only limited and drawn out pathways of substitution and gradation to political authority.

This situation whereby descent groups became large, powerful and wealthy in the course of the iron boom but had no access to established political authority led to great internal tension in the final decades of the last century. This was given full expression in the course of a protracted succession dispute following the barren death of FON[11] NYWIFON c.1875 in which disestablished but powerful smithing and smelting groups installed their own candidate, a uterine nephew of the late FON, against the wishes of the established titleholders of the chiefdom.

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[11] The title "FON" refers to the office of the chieftainship. The ritual and political powers associated with this office are discussed in the section on the political organisation of the chiefdom below.

The question why did BABUNGO not expand its nobility at the expense of its periphery, in this case the chiefdoms that surrounded BABUNGO at the end of the 19th century, or, even, why BABUNGO itself was not absorbed by its larger and more powerful neighbours, links both local and regional political structures. Accordingly, the conclusion to this section returns to the historical themes outlined in the introductory historical section and deals with relations with larger neighbours and the inhibition of the extension of hegemony over those groups settled in refuge around BABUNGO. The key factors that may have prompted such enormous levels of BABUNGO output in the 19th century are brought together in terms of the highly precarious strategic position of BABUNGO vis à vis the neighbouring expanding states of NSO' , KOM and BAMUM set against the high levels of material wealth enjoyed by the chiefdoms of the northern Ndop plain.

The ambiguity of this situation is shown to be given further and succinct expression in the course of gift exchanges between FONS, ie. chiefs. These exchanges served to create hierarchical relations between FONS on the basis that what a FON might put into the system depended on the material wealth of his chiefdom which in turn derived from his mystical powers. In parallel to the conceptual underpinnings of the mystical bases of power and authority in the Grassfields, the production of ironware also represents an objectification of mystical powers in transforming ores into highly prestigious and powerful material culture objects through the use of medicines and sorcery. Hence, the introduction of ironware into these exchange relations short-circuited the normal pathways and created an inherent ambiguity in relations between BABUNGO and its more powerful neighbours that may have protected it from being absorbed by them.

In the general conclusion the major points raised in this study are recapitulated and the weaknesses and strengths of the adopted methodology reviewed. Finally, the findings of this research are linked to other work in this field.

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Factors Influencing Output Of African Iron Industries

Accounts of sub-Saharan metallurgy tend to take one of two apparently contradictory lines. It may be characterised as hidebound by taboo and ritual, inherently conservative[1] with no tendency to innovate[2]. Together with the apparent lack of a developed pyrotechnology this leads to diffusionist conclusions that bring the knowledge of iron working from the Egyptian and Phoenician worlds of the developed Bronze Age, across the western Sahara or down the Nile[3]. Alternatively, the apparent[4] enormous diversity of

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[1]. See especially the account by Wyckaert (1914) of iron working amongst the Ufipa of Tanzania. Also see the account of smelting among the Ba-Ushi in which it is stated "There was no thought as to the purpose of the different steps in the process, at least no scientific consideration of the why and wherefore. The experts had received a tradition and they clung to it faithfully, making no discrimination between essentials and non-essentials. Every detail of the ritual was apparently equally essential." Barnes, 1926. Echard, 1980, puts it in these terms "plus la part symbolique est importante et la part technique réduite, moins l'ensemble...humaine et technique n'a de capacité de transformation".

[2]. Appia (1965) states the case with some insight in discussing the smelters of Fouta Djallon "En résumé, l'artisan noire redoute tout acte de transformation car il entre en lutte avec les forces de la nature: les *ginnad'i*. Cette intervention humaine demande une soumission absolue aux conventions créées par les ancêtres.". Carl and Petit (1955) also explain the persistence of relatively primitive metallurgical techniques amongst the Mourdi as due in part to "le caractère surnaturel attaché aux travaux du fer s'étend ...non seulement à la personne même du forgeron, mais aussi à ses actes, à ses outils : il sacralise, en quelque sorte, les lieux et les installations de l'atelier de sidérurgie...." but this is actually thrown into some doubt by the discovery at Toungour of "les culots des fourneaux ...analogues aux vestiges du Mourdi, qui témoignent d'une technique différent de celles pratiquée de nos jours", Huard (1966).

[3]. Peake, 1933; Mauny, 1952; Tylecote, 1975; and also Calvocoressi and David (1979) for a discussion of dates.

techniques together with exploitation of technical features not brought into use in European metallurgy until relatively recently are taken to indicate the technological precocity[5] of African iron workers and possible independent centres[6] of development of iron production. Both lines of thought may represent an unconscious attempt to reconcile the contradictory elements inherent in our preconceptions of what constitutes the primitive and the metallurgical. The African iron worker is either an automaton reproducing technical steps with the aid of ritual mnemonics and no understanding of the objective nature of the work or he is simply technically precocious using techniques seemingly far beyond his cultural development.

There arises an immediate contradiction between the supposed inherently conservative nature of the technology and the apparently enormous diversity of furnace types and techniques[7]. Central to the problem of conservatism versus diversity through innovation is the question of productivity and levels of production. With few and

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[4] (...continued)

[4]. This diversity may be more apparent than real, Pole (1975), for instance, has demonstrated that numerous differences in the details of furnaces, forges and tuyères may occur within the context of generally similar forms in the Upper Region of Ghana.

[5]. Achinard, 1884; Merwe and Avery, 1982; Schmidt and Avery, 1978; Sassoon, 1963; Noten and Raymaekers, 1988. Preheating of the airflow may be significant in fuel savings but the notion that this "could have constituted a significant technological innovation ...with the smelted product being an intentional steel." (Goucher, 1981, my emphasis) seems untenable in so far as the bloom was then taken and largely decarburised in the smithing forge.

[6]. von Luschan, 1909; Rattray, 1914; Forbes, 1933.

[7]. It is conceivable that ritual and symbolic constraints would not, however, inhibit change altogether. Small and gradual changes could still occur in furnace design and production process without threatening the ritual and symbolic content of the work. This may explain the large number of minor variations visible in related traditions of furnace design and smelting technology (see Pole, 1975).

notable exceptions[8] the latter is either ignored or, more commonly, characterised as extremely low[9]. This is attributed variously to physical or cultural factors or a combination of both creating serious inefficiencies. Selected ores may be too poor[10] or inadequately prepared, or furnaces too crude to provide proper insulation, or the work so overloaded with "non-technical" ritual and taboo that it becomes hopelessly inefficient in terms of labour costs.

Relative levels of output, as signalled by volumes of debris[11], are significant in that they may indicate the relative economic importance of particular centres and by inference the extent of exchange and trade networks[12]. Where debris volumes can be associated with particular furnace types and technologies broader inferences may be drawn regarding the relative success of competing technologies. In order to lay the groundwork for an evaluation of the economic and social impact of iron production on precolonial African societies it is proposed to investigate one major centre of production exemplifying high levels of output in order to evaluate the factors that may have influenced these levels of output.

However, at the outset, two major provisos have to be dealt with in regard to the relation between recorded debris volumes and actual outputs of iron. Firstly, the observable volume of debris does not necessarily represent

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[8]. Tauxier (1917), Calvert (1918), Froelich (1963), de Barros (1985 and 1986).

[9]. Grebenart (1983) attributes this phenomenon to technical inertia.

[10]. Jeffreys, 1948 and 1942 unpublished.

[11]. Silicate slags form the major part of debris from the bloomery smelting process and are largely indestructible.

[12]. Warnier and Fowler, 1979.

the total output since in many cases[13] old slag was reused, albeit only as a minor element, as a part of the charge of ore and fuel. In the Grassfields[14] a recycling industry was busy in the 18th and 19th centuries depleting the debris produced by older industries. Accordingly, not only does a low volume of observable debris not necessarily signal low volumes of output but may in rare cases represent concealed high levels of both original smelting of ores and later recycling of old slag.

Secondly, the volume of observable debris does not equate one to one with volumes of bloom output in so far as the product of the smelting process is unlikely to have been uniform[15]. Nonetheless, in the absence of repeated reconstructions of the smelting process it seems reasonable to rely on the few early recorded observations in the literature, "mean" outputs recorded from numerous participant informants, and physical observations of slag form, volume and furnace capacity[16] in order to arrive at estimates of slag to output ratios.

Further, it is clear from informant's accounts that variable outputs of bloom may arise from relatively uniform inputs of labour. This very important point of unequal rewards for apparently equal labours is vital for an

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[13]. Rosemond, 1943. Bellamy, 1904, describes the use of up to 15lbs of old slag being smelted together with some 50lbs of true ore by Yoruba smelters.

[14]. See below, chapter on OKU iron production.

[15]. See Pole, 1983, for a detailed discussion of this point.

[16]. In Grassfield clump furnace industries the block of slag and bloom was allowed to solidify within the furnace and then extracted whole through the furnace mouth. In a few instances it was possible to fit together segments of the cake of slag from which a bloom had been removed and so reconstruct the "furnace bottom" and assess the volume of slag produced. This taken together with observations of the dimensions of well preserved furnace mouths and informants' statements enabled reasonable estimates of potential slag volumes to be made.

understanding of the conceptual framework of iron production that strives to explain not how iron is produced but why one man's labours bring greater or lesser rewards than the similar labours of another.

Descriptions of African iron working often unnecessarily dichotomise between technical and non-technical elements of the production process. The question of fluxes and air flow illustrates how this may lead to confusion. The use of a flux in smelting is specifically related to 19th century European techniques[17] and has little relevance to African smelting techniques[18]. However, whenever a substance not obviously an ore or fuel input is included in the charge it is represented as a flux[19], ie. it is incorporated into the technical side whether it is chemically significant or not. Similarly, where an induced draught is employed it is very often[20]

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[17]. In a letter (M.6151/60, 17.6.42) to Jeffreys from the Principal of the Mineral Resources Department of the Imperial Institute it is stated that "In discussing these native smelting processes many writers suggest that greater efficiency would be obtained if a limestone flux were added, but this suggestion appears to be quite erroneous. It arises from a direct comparison with blast furnace practice and ignores the fact that while blast furnace slag come into operation at temperatures above 1300c to 1400c, in direct reduction processes the slag must be fluid around 1000c to 1100c. At the latter temperature lime slag would not be fluid.".

[18]. However, this does not mean that the addition of appropriate fluxes would not have aided the separation of slag from metal and reduced losses of metal to the slag (see Todd and Charles, 1978).

[19]. See, for instance Brown, 1971, who describes "a flux in the form of the ground-down shell of the African land snail....the only recorded use of a flux in smelting in Africa south of the Sahara". And, also, Carl and Petit (1955) who describe the use of "une couche de crottin d'âne écrasé (jouant peut-être un rôle de fondant...)".

[20]. Achinard, 1884. Rosemond (1943) suggests that even the door of the foundry may be orientated toward the prevailing winds in an industry that actually employs a forced draught method. See also Zacharias and Bachmann, 1983.

stated that the main vents are orientated toward prevailing winds. However, since even on a blustery day wind speed at ground level is minimal this orientation must represent something else altogether. While observers may be too keen to dichotomise[21] it seems clear that participants make no such distinction[22]. There may, however, be some analytical value in objectively distinguishing productive from non-productive elements in so far as labour productivity may be influenced by the relative preponderance of non-productive elements in the production process.

Explanations of low output generally fall into one of four categories, namely physical and technical constraints, cultural factors, economic conditions and socio-political limitations.

Physical and technical constraints centre on the provision of suitable ores, adequate fuel and the ability of the technology to exploit these resources. A number of difficulties arise in considering these factors. Samples of ores taken for analysis seem often to represent those rejected by the smelter and may falsely indicate low quality[23]. Further, the notion that technical constraints, such as poor insulation of the furnace and lack of fluxes,

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[21]. Smets (1937) puts it in these words "Nous sommes trop tentés de croire que, pour le primitif, tout est magie: il serait peut-etre vrai de dire que pour lui tout est technique."

[22]. It does not follow from this that participants have no understanding of the consequences of their technical actions. Rosemond (1943), for example, was told by his Warongo informants that they did not tap slag, although they were aware it could be done, since they knew that to do so would produce a bloom that tended to flake while being forged. Todd and Charles (1978) confirm that tapping slag may allow reoxidisation of the bloom, so, untapped, the bloom may contain more carbon, be more malleable and so less likely to flake.

[23]. This may attest to the inhomogeneous nature of the ore bed being exploited but does not necessarily permit inferences regarding the potential yield of the ore charge loaded into the furnace to be made (D. Killick, personal communication).

limit output reflects a misapplication of models derived from Western smelting techniques[24]. Experimental evidence suggests the attainment of sufficiently high temperatures for the reduction of ore is not a significant constraint[25] and ethnographic evidence shows that this can be achieved in simple open bowl furnaces[26]. Hence, it seems that the insulation qualities of particular furnace types are largely irrelevant to the actual smelting process, although highly significant for fuel conservation and the reduction of input costs. Building up a furnace structure over the charcoal bed simply increases the volume of the area in which a reducing atmosphere can be created to chemically transform iron from its oxide to metallic form by enclosure and excluding oxygen. The actual form of these structures may be more significant as indicators of cultural traditions, links and exchanges rather than for specific technical qualities or presumed adaptations to particular conditions[27]. In terms of output furnace structure is most

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[24]. Goucher, 1981.

[25]. Rehder (1986) demonstrates that "a simple charcoal furnace 30cm in diameter with a single tuyère easily powered by one man can reach 1,600°C". This implies that the actual reduction of ores in a bloomery process requires temperature levels somewhat less than those readily attainable and casts doubt on the usual view that links the development of metallurgy very closely to the increase of temperatures achievable in smelting furnaces.

[26]. In the precolonial period open bowl smelting of old slag in crude stone lined pits was performed by smelters of OKU, KOM and other Grassfield chiefdoms. Early in the colonial period a shortage of old slag led to a 50-50 mix of true ores and old slag being smelted in the same furnaces in OKU. Open bowl furnaces smelting true ores are also found in the Lakes region, East Africa, the Congo basin (see Delisle, 1885) and Angola (Merwe and Avery, 1982) and in Kenya in use in the Southern Mbeere (Brown, 1971).

[27]. There is a persistent notion in the literature that links particular furnace forms to local conditions of ores available. This derives from an evolutionist premise that the increasing sophistication of furnace structures

(continued...)

significant in the volume[28] or physical capacity, of the enclosed area in which reduction can take place. Accordingly, technical innovation and changes in furnace structures may be linked to changing demand and the need to adjust input costs in the face of competition between producers supplying a common market[29].

The insulation qualities of the furnace relate closely to the potential constraint of available fuel. Inefficient charcoal production processes consume large volumes of wood and may lead to shortages constraining further production[30]. On a global level this is undoubtedly true but the ecological perspective often takes too little note of the highly selective nature of charcoal exploitation and replacement rates for those particular selected species[31], and may, in any case, be most useful in respect of marginal bio-climatic zones such as the Sahel. Furthermore, the use

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[27](...continued) permitted better ores to be exploited, see Richardson (1934) Forbes (1950) and Coghlan (1956). Ethnographic evidence, however, suggests that there is no such link. The deterministic principle remains and Momino (1983), for instance, puts forward the hypothesis that the apparent diversity of furnaces in use amongst the Gbaya and Manza can be explained in terms of the differential availability of particular minerals used for furnace building. Also, Sutton, in Haaland and Shinnie (1985), similarly "explains" variations in furnace typology (sic) through the empirical evolution of techniques to fit local conditions and requirements.

[28]. The notion that furnace size is negatively correlated to ore quality (Sutton, in Haaland and Shinnie, 1985) needs to be verified either empirically or experimentally. It may, in any case, only apply to the tall cylindrical furnaces associated with primary reduction of ores.

[29]. See Feeny, 1982.

[30]. Greig, 1934; Goucher, 1981; Haaland, 1980; Merwe, 1983; Noten and Raymaekers, 1988.

[31]. See, for instance, Haaland (1980). Goucher (1981), on the other hand, rightly stresses the selectivity of African charcoal makers and the slow regrowth rate of selected species.

of non-charcoal fuel inputs has not been given sufficient consideration in the ecological model that strives to account for the demise of African iron industries[32]. The case of the BABUNGO industry illustrates how a completely sedentary industry in a grasslands environment was apparently able to innovate to overcome potential and actual constraints imposed by fuel shortages[33]. It also suggests that the key relationship is not necessarily directly between iron production as a whole and finite fuel resources but rather in the differential allocation of access to differing segments of the resource base to the various divisions of production.

Given adequate ores, fuel and draught it is difficult not to conclude that the real technical constraint on output is the relative capacity of the furnace that might offer greater or lesser economies of scale for given labour and material inputs. Larger furnaces with a lower ratio of surface area to volume are more efficient at retaining heat. This implies the temperatures necessary for reduction of iron ore can be attained and maintained at lower cost in fuel inputs. Also, observations of the return of unshingled bloom for input of ore in the Grassfields illustrate that larger structures tend to be more efficient in this respect than smaller ones[34].

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[32]. Estimates of the tree take up for charcoal production for iron smelting must depend on fuel to ore ratios relevant to particular industries. Within certain limits there are no technical constraints that fix the value of this ore to fuel ratio (see Rehder, 1986). It follows, therefore, that these values may vary over time in response to changes in technical and environmental factors without endangering the productive outcome of the smelt. Accordingly, values derived by ethnographic analogy may not necessarily be applicable to archaeological sites nor even to earlier stages of the ethnographic example industries.

[33]. See below, chapter on the material inputs of the smelting process.

[34]. See below, chapter on relative productivity.

Hence, it is not the technical sphere that necessarily imposes constraints on output but rather the ability of a particular industry to recruit labour and provide access to capital equipment, and to respond to rising demand by increasing furnace capacity through technical innovation. Only the simplest of structures[35] might be increased in size without alteration to form and rearrangement of parts and in many instances a pair, row or bank[36] of furnaces would be constructed rather than one single proportionally larger structure.

What emerges from the literature is the huge variation in productivity, expressed as labour costs for unit of production, and the general characterisation of production as highly inefficient in terms of labour costs[37]. It will be shown below, for instance, that Haya production was some 40 times less efficient than that of BABUNGO[38] and that even within the Grassfields efficiency varied by as much as eightfold[39]. It seems plausible to suggest that since the production process is so labour costly the severest constraint on production is likely to be the availability of this factor. Hence, it is necessary to analyse the limitations imposed on production by the nature of the

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[35]. The tall cylindrical "truncated cone" or shaft furnaces, for instance, might vary from 1-6ms (Forbes, 1933).

[36]. Warnier and Rowlands, 1988; Echard, 1965; Momino, 1983.

[37]. Smets (1937) states "on voit ici la disproportion entre l'effort accompli et le résultat obtenu. Il suit de là que tout ce qui permet une économie d'effort dans la production de la matière sera bienvenue....". See also Guyer (1986) who, in quantifying production constraints on Pahouin iron production, suggests labour was a major constraint.

[38]. The cost of producing a single Haya hoe was estimated at $250 in terms of contemporary labour costs, (Merwe and Avery, 1987).

[39]. See below, chapter on relative productivity of Grassfields industries.

organisation of labour, access to equipment and division of rewards. It will be shown below that certain Grassfield clump furnace industries were organised in such a way as to provide access to highly capitalised foundry equipment and specialist skills to non-kin in return for small rents and that production for wealth accumulation was socially sanctioned through a pervading ethos of cooperation and sharing.

There is a further underlying evolutionist assumption in much of the literature[40] that large scale production leads to, or precedes intra-industry specialisation between smithing and smelting. Evidence from Grassfields clump industries suggests that the reverse may be the case, ie. that specialised smithing and smelting is a prerequisite for the attainment of high levels of output[41].

In fact, the precise nature of the division of tasks[42] within the process of transforming an ore into an artifact

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[40]. Herbert 1988, and de Barros 1985.

[41]. This mode of specialisation may also be associated with low levels of production, eg. BAGHAM. There is also a case to be made that specialised smithing and smelting linked with the very high degree of capitalisation in foundry and furnace tools and structures characteristic of Grassfield clump industries may, in itself, lead to a conflation of the industry into combined smithing and smelting by different personnel in the same location using old slag recycled in an enhanced smithing hearth as the source material.

[42]. The physical process of transforming a charge of ore into a forged item of ironware is susceptible to any number of serial divisions allocated to any number or combination of participants. It is unfortunately the case that terminological inexactitude together with imprecise observations have tended to obscure actual divisions in particular industries that are vital to an understanding of relative efficiency and production levels. In this study a <u>smith</u> is the iron worker who forges ironware in a <u>smithy</u> while a <u>smelter</u> is the iron worker who smelts ore or old slag in a <u>foundry</u>. Of course, the two tasks may be performed by the same personnel in the same workshop but the processes of smithing and smelting always remain technically and conceptually distinct (see chapter on OKU iron production below).

is an area of considerable confusion in the literature. This is due to terminological inexactitude and failures to distinguish between smithing and smelting as separate tasks undertaken by separate personnel at the same or different locations from these separate tasks undertaken by the same personnel at one or different locations[43]. Further, the actual allocation of tasks between the divisions of production appears to be a key factor in the development of high levels of output in the Grassfields where two modes of specialisation occurred both concurrently and consecutively. In one the mechanical refinement of bloom, whereby it was crushed and the iron separated from pulverised slag, was done in the foundry by the smelter; in the other the bloom was carried whole, or in lumps, to the smithy where it was refined by the smith. Not only did the second mode represent a considerable saving of labour by the smelter but the mechanical refinement of the bloom by crushing combined with heating and hammering in the smithy hearth is likely to have made the process overall less costly in labour. It is this second mode that is associated with the enormous levels of output in BABUNGO in the 19th century[44].

The nature of intra industry specialisation is also relevant to the linkage between the very high symbolic or ritual content and the characteristic inefficiency of the production process. In other words production time is

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[43]. Certain technological constraints operate in this sphere so that, for instance, smithing and smelting can only be carried out simultaneously in an open bowl furnace type. However, even where this occurred in the Grassfields such as in the chiefdom of OKU different personnel did the smelting and smithing around the same hearth at the same time.

[44]. The smiths of the chiefdom bemoaned deeply the onerous nature of this part of their work which suggests estimating labour costs solely in terms of man/labour hours (or days) misses out on the subjective evaluation of the "cost" of different tasks in production.

filled up with non productive tasks[45]. It is a common feature of industries with separate smithing and smelting that only the latter is enshrouded with taboo and restrictions while the former is relatively free of non productive elements[46]. It is clearly a truism to state that whatever factors constrain smelting output will necessarily affect the overall potential output of ironware. The relative degree to which the smelting process, including preparation of material inputs and capital equipment, are loaded with non productive tasks will tend to constrain relative output. Hence, where, as in the Grassfields, a number of basically similar industries were competing together for market outlets those industries able to slouch off, or reorder the staging of non productive tasks, would achieve some comparative economic advantage over more conservative competitors[47].

Underlying all of this is the conceptual framework in which transformation of ore into artifact takes place. It was apparent from questioning Grassfield informants that those most distant from active involvement in the industry tended to stress most the ritual and symbolic elements of the process and also that those transfers of technology, including furnace structures and production processes, that did occur in the 19th century, occurred without any parallel transfer of the knowledge of the use of medicines and rituals. The fact that such transfers took place at all implies that the medicines were not a device for

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[45]. "The amount of attention directed at these items (ie. medicines, ritual or witchcraft) in the course of smelting easily equals that expended on technical problems." (Merwe and Avery, 1987).

[46]. Rosemond, 1943.

[47]. It will be shown below for instance that the OKU recycling industry was relatively free of ritual or non-productive elements which reflects its nature as an enhanced <u>smithing</u> technology that arose from the collapse of separate smithing and smelting.

preserving tradecraft secrecy[48] and the fact that those able to offer only broad outlines of ritual and symbolic elements could not supply details of productive processes implies that these elements have no effective mnemonic role to play[49].

The element of magic in the Grassfields clump industries, apart from acting as a foil against the predations of witches, appears to have served to account for the empirical experience of unequal rewards for apparently equal labours in terms of the effectiveness of the medicines of the owner of the foundry. It does not follow from this that the magical element was simply a confidence boosting feature of the process[50]. Smelting in BABUNGO, for instance, was an intensive, repetitive and seemingly highly successful and remunerative activity. Just as in the realms of human reproduction, hunting, agriculture, trade and war, in the context of iron smelting, too, the fact of unequal rewards was accounted for not in terms of purity[51], ancestral favour or even plain effort but in relation to the effectiveness of the knowledge and use of medicines. No universality is claimed for these notions but they are of significance in comparative terms in relation to levels of output. A conceptual framework for iron production that, for instance, requires an induced abortion for each and every smelt[52] would be constrained from approaching levels of output attainable by those whose beliefs centred on accounting for relative degrees of success in terms of the effectiveness of medicines.

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48. Kjekshus, 1977.

49. Contra Bronowski (1973) it is possible to argue that the technical steps of production are as much a device for recalling the ritual steps as vice versa.

50. Malinowski, 1948.

51. Wyckaert, 1914.

52. Hodgson, 1933.

BABUNGO: A Case Study

In order to throw further light on the problem of factors that influence production and output levels one major 19th century centre of production will be examined in detail. Eugene Zintgraff, the first European to reach the Ndop plain chiefdom of BABUNGO in 1889, noted that it was a major centre of iron production with a widespread reputation for its products[53]. Fifty years on wartime materials shortages prompted the British colonial administration to investigate iron production in the region and some details of the process of smelting iron ore in a BABUNGO foundry were recorded and the evidence of a formerly more widespread industry noted[54]. A survey of smelting debris and foundry remains in BABUNGO undertaken by the researcher, 1977-1978, together with recorded testimonies of participant informants indicated a precolonial metallurgical industry of hitherto unsuspected proportions[55].

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[53]. Zintgraff, 1895.

[54]. Jeffreys, 1942a, unpublished.

[55]. Warnier and Fowler, 1979.

Table 1

Annual Output Levels (tonnes)

Area	Output	Date	Population	Source
YATENGA	539	1904	98,000	Tauxier[56]
BASSARI	200	1917	250,000	Sicre[57]
BABUNGO	65	1900	3,000	Fowler

These figures give no more than an extremely approximate notion of relative output levels. Output in metric tonnes may refer either to shingled or unshingled bloom, only in the case of BABUNGO does the figure refer to forgeable iron. Population figures are also uncertain. In the case of BABUNGO the figure refers to the estimated population of the producing chiefdom only whereas Sicre's figure for BASSAR appears to refer to the total population of the area served by BASSAR production, other sources indicate the population of the production zone to be c.20,000-40,000 at the end of the 19th century. Finally, the bases upon which production volumes are estimated differ in each case. Tauxier's figures are based on the potential output of the total number of furnaces recorded (or estimated?) for the region. Sicre's figures derive from an estimate of annual demand for hoes. The figures for BABUNGO are an estimate of average annual output based on recorded smelting debris for a given period of time.
What does emerge from this is the enormous level of output

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[56]. Tauxier, 1917, quoting Capitaine Noiré whose production volumes appear estimated on basis of a total number of 1500 furnaces operating in the region. The population figure is derived from statement in text that of a total of 16,000 iron workers in Yatenga some 14,000 are Foulsé and constitute 1/7 of the total population of this race.

[57]. Quoted in Kuevi, 1975. Production volume based on estimate of annual requirements for replacement hoes for estimated total population.

achieved by BABUNGO, a single centre of production, relative to the regional zones of production of the Yatenga and Bassar areas.

It is not considered that BABUNGO output represents a unique phenomenon, only that no other single centre has been so intensively surveyed for smelting debris in the context of relatively well fixed spatial and temporal parameters. It will be argued below that a major technical innovation in furnace structure datable by means of oral tradition and historical sources to c.1780 enables an assessment of debris output to be made for a fixed period of time and that the entrenchment of the chiefdom early in the 19th century enclosing all new furnaces and associated debris fixes the spatial limits of the distribution of debris.

The reconstruction of the internal features of the BABUNGO iron industry will be prefaced with an outline of the physical evidence for former widespread production, for technical innovation in furnace structures and associated levels of output. A brief attempt will be made to account for the persistence of the BABUNGO industry in relation to the concentration of the production zone to a few centres in the Ndop plain and the linked devolution of large scale modes of production elsewhere to recycling industries exploiting the debris of older industries. It is hoped that the analysis of the internal features of the BABUNGO industry and comparison with the technology and organisation of work in other persisting centres of production may throw some light on these phenomena of concentration of production and devolution of technology.

The study will be set within the technological, historical and economic context of the emergence of this centre, ie. BABUNGO, as one in competition with other similar centres for the wider market. Historical events of the 19th century will be considered in some detail in so far as they may have depressed iron production in some areas and, at the same time, promoted the emergence of

BABUNGO as the major centre of Grassfields iron production. The case of BAMESSING will be examined in order to illustrate the complex interplay of historical, economic, political and technological factors relevant to these regional developments.

On the basis of oral data, physical evidence, and published and unpublished sources an attempt will be made to reconstruct the technology and organisation of the BABUNGO iron industry with particular attention to labour costs, modes of labour recruitment, provision of access to capital equipment and division of rewards, and also to the conceptual framework of production with reference to the application and allocation of technical and ritual knowledge. Data gathered on the neighbouring and contemporaneous OKU industry will permit some evaluation of the comparative labour productivity of Grassfields iron industries.

BABUNGO does not represent the recent emergence of a single centre of production in isolation but rather the persistence of one centre in the face of regional contraction of production. In the present absence of detailed archaeological data, very little can be said about the initial impetus to the development of iron production in the region. Much more can be said concerning those factors that may have given BABUNGO a competitive edge over other centres and those that served to promote and sustain rising levels of output in the last century. In this vein the distributive context of the BABUNGO iron industry will be described in terms of markets, traders, credit, commissions, convertible currencies and commodity flows.

Finally, since the ultimate constraint on gross output is the maintenance of the integrity of the community in which the industry is set the internal and external conditions for the maintenance of this integrity will be examined . The political structure of the chiefdom will be examined in terms of the potential for conversion of wealth gained in production and trade into title, prestige and power. Also, the special position in the regional network of gift exchanges and political alliances that BABUNGO held by virtue of the nature of its specialised product will be considered.

The Extent and Antiquity of Iron Production

Jeffreys[58] recorded evidence, from the Bamenda region, of smelting debris indicating a formerly widespread iron industry that included over 40 separate sites. Data from other sources[59] bring the total closer to 60[60] sites, of which only a very few represent evidence of recent smelting industries (see maps 1 and 2). These included centres at ESU and WEH, employing simple cylindrical furnaces to smelt low-grade limonite ores; the chiefdoms of KOM and OKU, smelting a mixture of slag and true ores[61] in open bowl furnaces; the KWADJA area on the north east margins of the Grassfields for which only sparse data are available; and a number of centres in the Ndop plain that used clump furnaces to smelt high grade limonite ores. Laboratory analysis of Jeffrey's samples revealed that the slag had a high iron content averaging c.40%[62], in the form of iron silicate. However, this was still only about half the iron content of the higher quality ores available in the area. Jeffreys also demonstrated that straightforward smithing using scrap remained common throughout the region.

While linguistic and archaeological data point to a long and ancient human occupation of the area the antiquity of iron production remains a problem. The sole dates[63]

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[58]. 1942.

[59]. Warnier 1975, Fowler unpublished.

[60]. See appendix A.

[61]. KOM smelters used only slag, OKU smelters began to use a mixture of slag and true ores in the colonial period when sources of slag had been nearly worked out. Immediately prior to this only slag had been smelted in OKU.

[62]. Analysis of slag used by OKU smelters by the "Geological Survey of Nigeria" at Kaduna showed an iron content of 43.6%.

[63]. Warnier, 1985 unpublished. Warnier and Rowlands, 1988 unpublished.

FIG. 1 **IKWITOH FURNACE**

Scale 1cm = c.10cm

are those provided by Warnier and Rowlands for the "Glazed Sherds" industry suggesting that iron production in the north west of the region may be 10-15 centuries old. No dates are as yet[64] available for the more extensive clump furnace industry and so it is impossible to determine chronological relations between these Grassfield industries. However, there is evidence that the Ndop plain clump furnace industry does not represent the earliest iron working tradition in that area.

In the foothills overlooking the plain a number of furnace sites[65] were discovered characterised by a surviving bowl[66] shaped structure, into which a series of tuyères had been set asymmetrically into one wall only, and lined over with smoothed and hardened "daga". At the centre of the base of the bowl was located a small "ritual" pit in which a short length of tuyère stood vertically, presumably filled with smelting "medicines". The form of this structure together with the results of analysis by Zacharias of ore and slag[67] from one site indicating use of manganese ores, available elsewhere but not used in other

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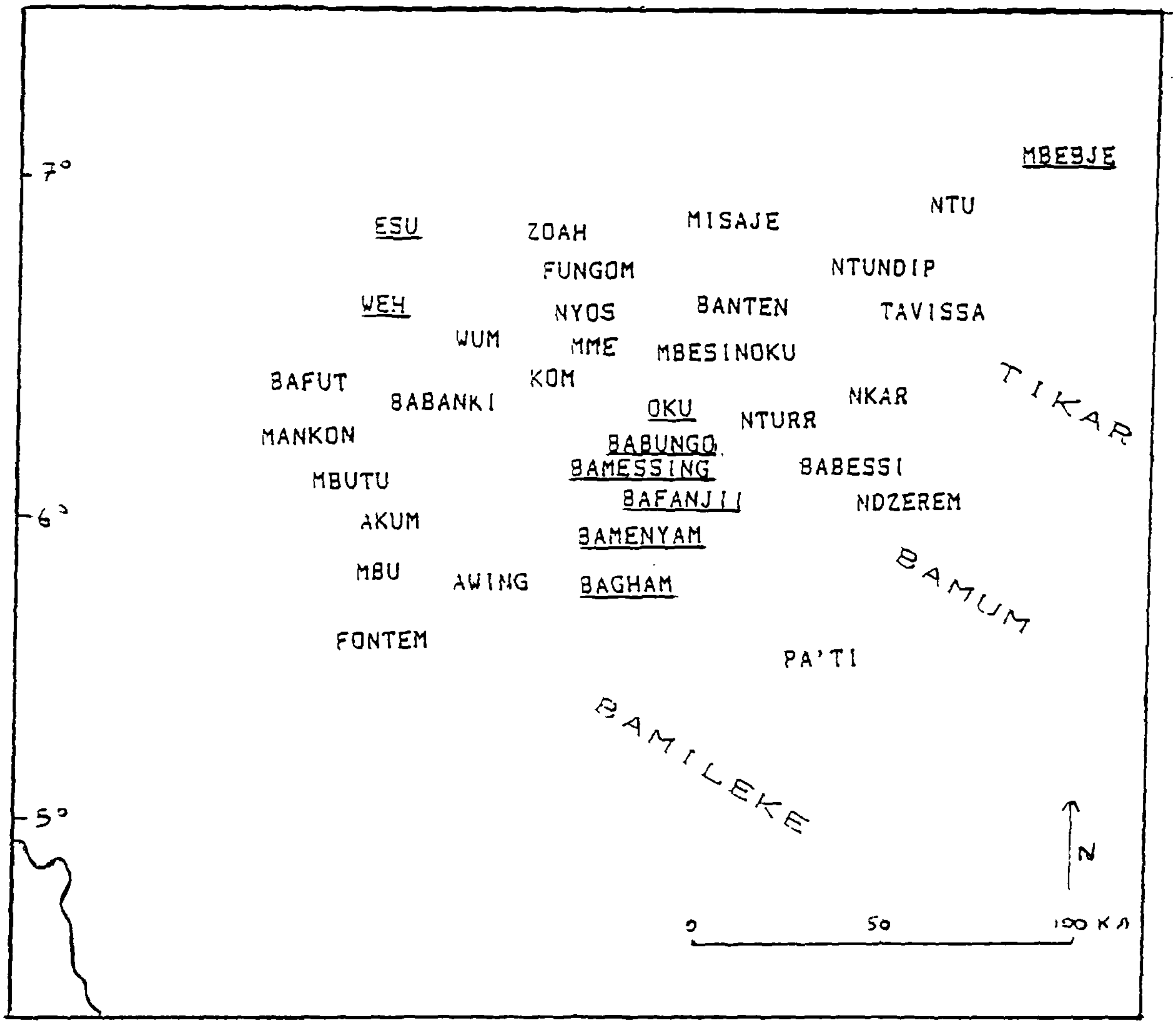
64. A short period of archaeological reconnaissance is planned in order to obtain baseline dates for the industry as well as to investigate its extent.

65. This furnace structure was originally located in an area of the BABUNGO chiefdom known as IKWITOH. See photograph 1.

66. The survival of a bowl shaped structure set in the ground does not necessarily indicate an open bowl furnace since frequently the superstructure above ground will not have survived.

67. A curious feature of these sites is the almost total absence of slag. It is conceivable that either the slag was buried as is the practice amongst some other sub-Saharan smelting groups or that the entire mass of slag and bloom was taken elsewhere for a secondary reduction process. It is unlikely that local iron workers seeking old slag for recycling should have cleared these sites so systematically as to leave no visible debris whatsoever. The materials for analysis were taken from the small saucer shaped "lid" of slag and ore that covered the "ritual" pit at the base of the bowl.

MAP 1 <u>GRASSFIELD IRON WORKING SITES</u>

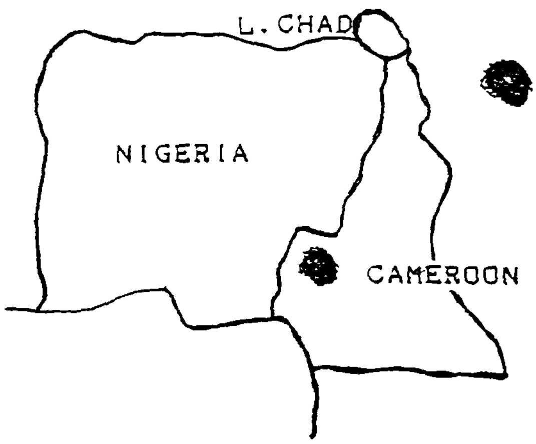


<u>KEY</u>

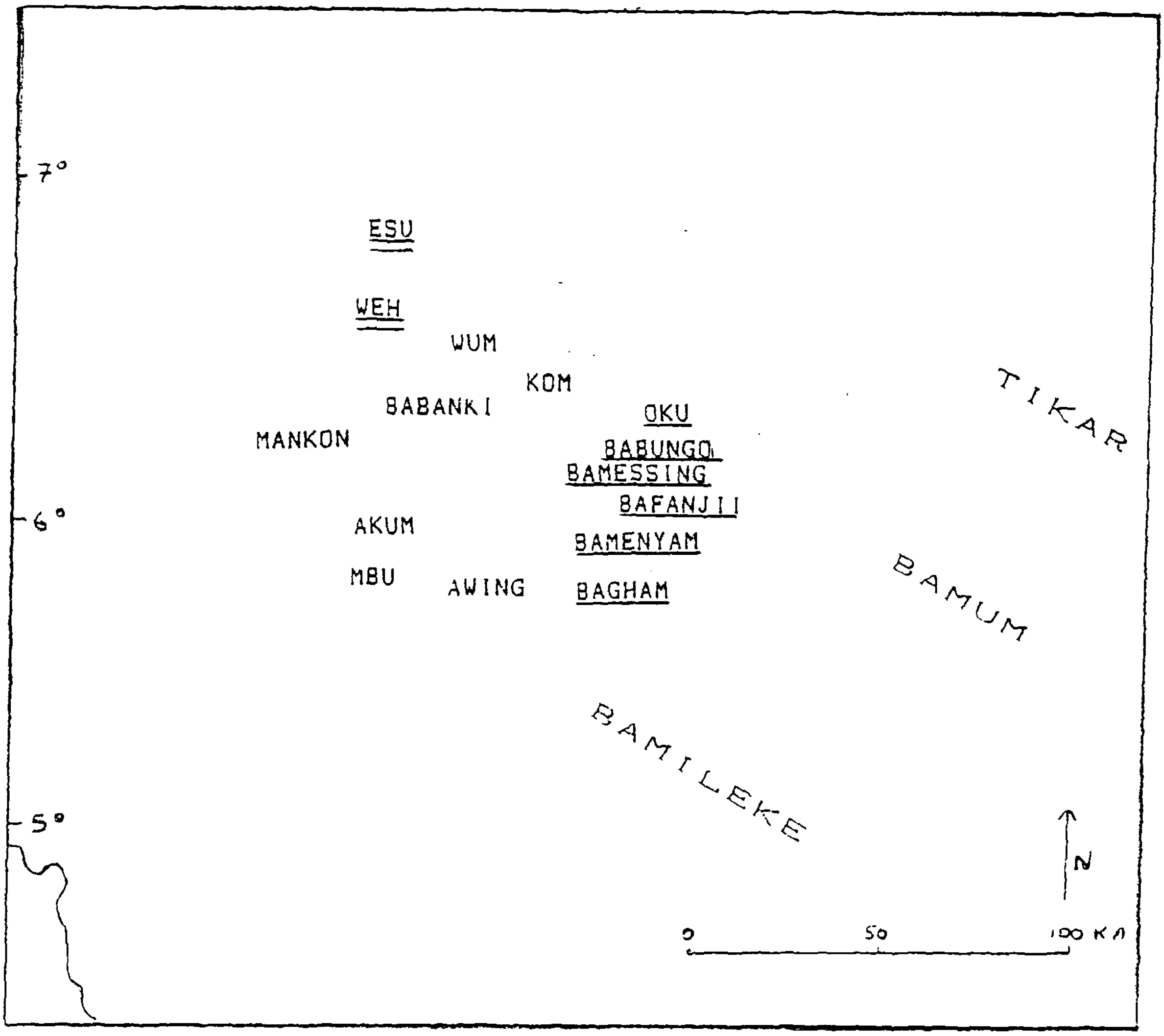
<u>BABUNGO</u> Recent centres of iron smelting

BABESSI Former centres of iron smelting

Area of study



MAP NINETEENTH CENTURY SMELTING TECHNIQUES



KEY

BABUNGO Clump Furnaces

AWING Open Bowl Furnaces

WEH Small Cylindrical Furnaces

smelting traditions, suggests an iron working tradition[68] that can not easily be linked to the historically documented iron working traditions in the Grassfields region.

Hence, in this small corner of sub-Saharan Africa we find at least four separate iron working traditions, represented by the Grassfield clump, IKWITOH, "Glazed Sherds" and OKU open bowl furnace types, whose linkages and origins remain uncertain. The various clump furnaces are clearly related and belong to a single tradition, albeit one with significant variations in furnace structure. They may be closely associated (see below) with the open bowl furnaces. The IKWITOH and "Glazed Sherds" industry are both separate from each other and not easily linked to the clump furnace tradition. This may represent either an ancient and independent centre of development or, more likely, a major crossroads which has drawn in traditions from many different directions.

The origins of iron working in the Grassfields remain to be uncovered by further archaeological research. The most obvious candidate for diffusion is the Nok culture with C14 dates for the iron smelting site of Taruga, c.200 miles to the northwest, of B.C. 591 +/-75 , and its extension to Katsina Ala, dated B.C. 400 +/- 125[69], only 50 miles or so from the Grassfields[70]. The earliest date for the Iron Age in West-Central Africa is that from the Lac Bleue site in Gabon of B.C. 105 +/- 145[71]. Undated smelting debris have been located in the Cross River and

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[68]. David Killick has kindly pointed out parallels with furnaces from Kasungu in Malawi which similarly have lengths of tuyères set vertically into the walls along with a single tuyère set vertically beneath the centre point of the floor base of the furnace.

[69]. Calvocoressi and David, 1979.

[70]. David, 1981.

[71]. Brown, 1985.

surrounding areas[72]. Nearby the Igbo area has evidence of intensive iron production[73]. To the south and east of the Grassfields the presence of an undated iron smelting industry employing tall cylindrical furnaces has been signalled[74] amongst the BASSA.

However, while many African furnace types are widely distributed those furnaces set into a bank with a forced draught from the rear have a more limited and discontinuous distribution (see map 3). They appear restricted to the Grassfields, the hill areas of Northern Nigeria and Cameroon[75], the Jos Plateau[76] and the Lower Niger (Nupe[77]) area. Sassoon[78] describes the Sukur furnace as "a cylindrical construction of clay or earth, built into a natural earth bank. The draft is forced, and is provided by a pair of drum bellows operated by a man sitting above and behind the furnace at the level of the top of the earth bank". Similar furnaces are reported for the Matakam by Carl and Petit[79] and a variant tradition with bellow pots incorporated into the body of the furnace in use amongst the Bana of northern Cameroon. An intermediate form[80]

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72. Nicklin, 1980.

73. Okafor, 1983. More recently a seemingly anomalous pre-Phoenician date has been claimed for these sites (West Africa, July 1988).

74. Essomba, 1985.

75. Carl and Petit, 1955.

76. Sassoon, 1963, 1964.

77. Nadel, 1942. Williams (1974) designation of the Nupe furnace as "Catalonian" appears to be in error as the reduction area is enclosed not open.

78. 1964.

79. 1955.

80. Gebauer, unpublished photographs. See photograph 2.

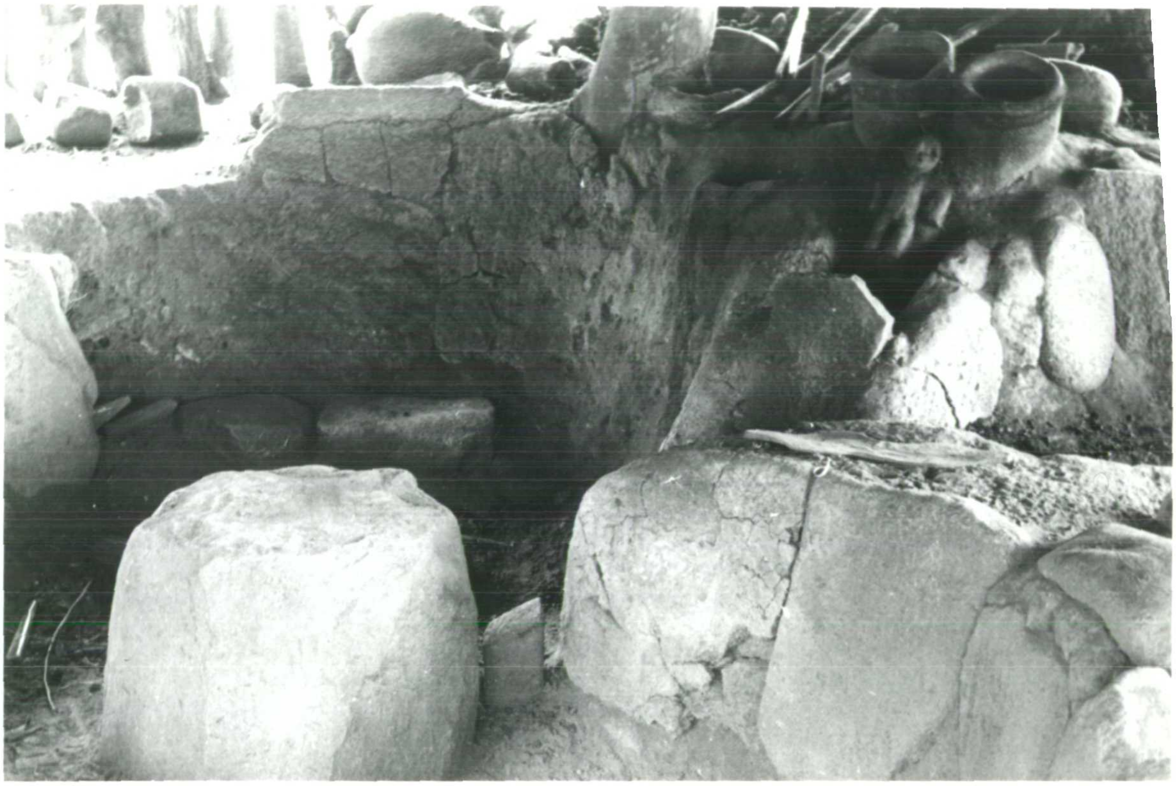


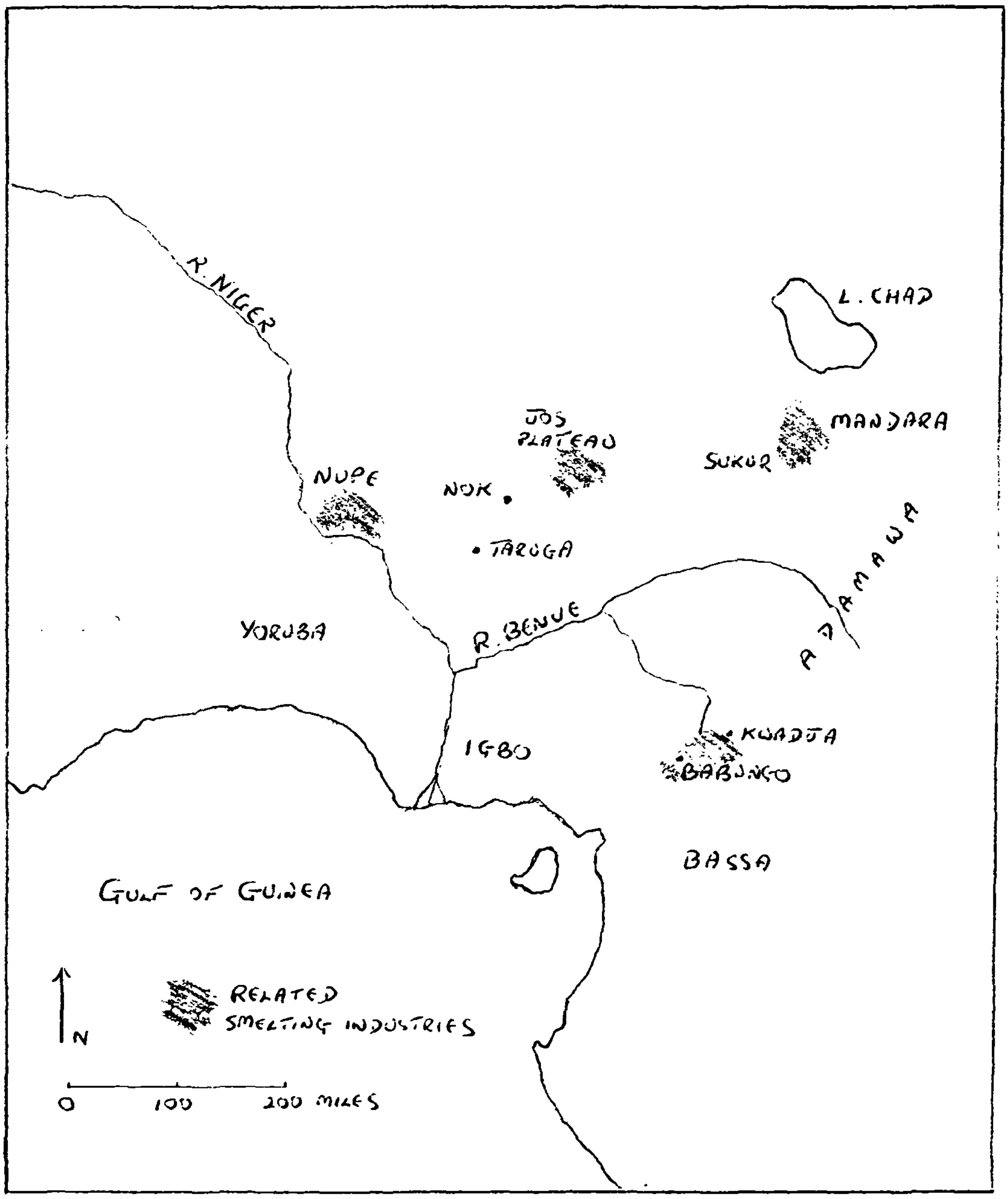
FIG. 2 **KWADJA FURNACE 1937**

Furnace with clay pot bellows and male figurine at top right of photograph.

The Metropolitan Museum of Art, New York
The Robert Goldwater Library
Paul Gebauer Collection

amongst the KWADJA of the north east Grassfields has bellow pots similarly incorporated with a single fixed tuyère descending almost vertically into the centre of the furnace through an aperture which is sealed in the course of the smelt.

MAP 3 GRASSFIELD AND RELATED IRON SMELTING TRADITIONS



Concentration and Devolution

In many cases slag deposits in the Grassfields were exploited by contemporary smelters as a source of "raw" material. The slag was not always recognised as such and commonly thought to be a natural ore[81]. In the precolonial period wherever[82] slag was used as an "ore", it was smelted in an open hearth furnace[83]. True ores were smelted either in a clump furnace set into a bank of earth and clay or a simple cylindrical furnace.

Jeffreys considered it possible to distinguish the larger, more weathered slag of ancient smelters that had been reduced in enclosed furnaces from the smaller, less weathered slag of recent origin produced in simple open bowl furnaces. Close examination of the technologies employed suggests the reverse. In the course of smelting slag in an open bowl furnace the single charge of slag remained near the centre of the cone of charcoal and was slowly reduced while fresh slag drained to the base of the hearth. The bloom was kept in position and manipulated occasionally with an iron rabble to allow the slag to seep through the burning mass of charcoal and form a large block of slag at the base of the furnace. This method was used in the chiefdom of OKU, where, over 24 hours, two or three

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[81]. It is unfortunate that this false identification of smelting debris as ore is now being repeated by scholars working in the region, see, for instance, Diduk (1987).

[82]. In the case of BAGHAM where true ores were smelted in a clump furnace a small quantity of slag was laid on the ash bed prior to the main charge being loaded into the furnace (Malcom, 1924).

[83]. The designation of such furnaces as "catalonian bowl type furnaces" is misleading. The only common feature is that reduction takes place in an open area below ground level. The insertion of a "giant tuyère passing through a free standing wall behind which the bellows are operated", to paraphrase a description by Williams (1974) is not a feature of Grassfields open hearth furnaces. These are, in essence, simple smithing hearths that may or may not be elaborated with a basalt stone or clay lining.

cakes of bloom were produced and only at the end of this period was the slag removed. The result was a very large block of slag, c.70-80 cm in length, characteristically light, porous and friable in appearance.

Smelters using clump furnaces loaded alternate charges of ore and fuel continuously throughout the smelt and the configuration of the furnace prevented rabbling the bloom which formed as twin blocks encased within a cake of slag. After cooling the block of bloom and slag was removed through the furnace mouth and the encasing slag broken away. Smaller pockets of bloom were enclosed in the slag located close to the main blocks of bloom and this was extracted by cracking open the slag with small rounded stone hammers. Accordingly, the slag emerging from this practice tended to be smaller and more compact than slag from an open bowl furnace.

The re-cycling of slag poses a number of problems for the history of the metallurgy of the region. Both to the west and east of the operative 19th century Ndop plain industries and between it and the "Glazed Sherds" industry to the north-west iron smelting was practised using an open bowl furnace to recycle slag produced by a more ancient and seemingly separate iron working tradition. Two problems immediately arise. Firstly, what was the nature of the industry that produced this slag? Secondly, what are the implications of the exploitation and removal of the physical evidence, ie. smelting debris of ancient industries, for any attempt to determine the levels of production and extent of distribution of these industries that can only be based on surveys of debris volumes?

The most intensive centre of iron smelting exploiting slag was OKU immediately to the north of the Ndop plain[84]. Its primary sources were the sites of IBAL-OKU and NTURR located in the northern Ndop plain in valleys extending

[84]: Zintgraff, 1895. Jeffreys, 1942. Drummond-Hay, 1925. Fowler, unpublished.

into the OKU massif. These sites have been more or less worked out with no intact remains of furnace structures remaining visible. However, observation of slag revealed forms characteristically produced in the clump furnace. In addition typical lumps of baked red clay that would have derived from such furnaces were observed together with fragments of pocked stones characteristic of more recent clump furnace foundries. This evidence together with oral traditions retained by groups that claim to have been settled in the NTURR area prior to their expulsion and resettlement in BABUNGO support the notion that the slag exploited by OKU smelters originated from a clump furnace industry once widespread over the OKU massif.

This conclusion appears to be supported by the material analysis of samples of smelting debris collected in IBAL OKU, NTURR and OKU. Zacharias[85] undertook a physical and chemical analysis of samples from the Ndop plain and nearby areas. The chemical composition of slag and ore samples was determined by quantitative X-ray Fluorescence analysis. Mineral contents present were determined by X-Ray Diffraction analysis. On the basis of visual examination slag was separated into tapped and untapped groups, which were further subdivided according to the chemical and mineral content analyses.

The accounts of OKU iron workers indicate that their source of slag for resmelting was a group of sites which analysis showed to be characterised by untapped slag with a content of manganese higher than five percent. This group was represented by samples taken from sites at IBAL OKU, NTURR and OKU. The chemical composition of OKU slag sample 1153(2), collected at a foundry site in OKU, is almost identical with the slag sample 1051 taken from surface smelting debris at NTURR. If the OKU sample had not been carried from NTURR and mislaid, which would seem unfortunate given the labour involved in trekking and

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[85]. 1979. See Appendix O.

carrying over the OKU massif, it may indicate that the industries that produced these samples were virtually identical.

Outside of this area no direct evidence is available and only limited inferences may be drawn from Jeffreys'[86] observations. Although not always correct on the provenance of different slag forms Jeffreys was, at least, clearly able to distinguish between them. Accordingly, it seems unlikely that he should have failed to observe the characteristic forms and great homogeneity[87] of the slag produced by the "Glazed Sherd" industry. Hence, it seems plausible that the sites described by him are not associated with this particular tradition and may derive either from the historically documented clump furnace industry or, possibly, from an apparently earlier and unconnected tradition linked to the IKWITOH furnace type. On balance the former seems a more likely candidate but confirmation of this is contingent on further archaeological research.

In respect of the second question it is worth emphasising the point that the physical evidence of observable smelting debris does not represent the totality of production. It was only the debris produced by the most recent industries associated with larger more efficient furnaces of BABUNGO and BAMESSING that was not recycled using open bowl techniques. Elsewhere, smelting sites seem to have been systematically exploited as sources of old slag. The only exceptions to this were isolated sites simply overlooked or those where transportation costs were too high to make their exploitation worthwhile. Where sites are characterised by wide, relatively level, scatters of debris it does not necessarily imply low levels of output or lack of pressure on available cultivatable land but more likely the results of later open bowl

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[86]. Jeffreys, 1942.

[87]. Rowlands and Warnier, 1988.

smelters extracting old slag. Accordingly, in very many cases not only is the physical evidence of smelting partly removed by the activities of later smelters but this removal itself is a function of further production of iron.

This all begs the question as to the origin and antiquity of the practice of recycling slag in this region. OKU traditions strongly suggest it long predates the 19th century. However, does it represent a separate tradition or rather the integration of the two specialist divisions of production, ie. smelting and smithing, associated with clump furnaces, under a devolved technological regime employing a slightly enhanced smithing hearth?

The evidence for the wider Grassfields region suggests three convergent trends. Firstly, the abandonment of large scale modes of production smelting true ores in clump furnaces in most regions apart from the centre. Secondly, the adoption in these areas where large scale production is abandoned of devolved recycling practices exploiting the debris produced by the earlier industries. Thirdly, innovation in furnace structures, presumably linked to gaining economies of scale and increased labour productivity, in those centrally located industries retaining large scale modes of production. This proposed model of regional technological change is largely speculative and requires substantiation and testing through archaeological research. However, we may lay the groundwork for such research by examining closely the nature of the technology and organisation of work of both the large scale BABUNGO clump furnace industry and the devolved recycling OKU industry in order to determine the significance of changing and relative labour and material input costs in influencing the trends outlined above. This may also throw light on the factors that promoted the enormous levels of production in BABUNGO.

THE NDOP PLAIN IN THE 19TH CENTURY

Oral tradition, physical evidence of settlement and iron working[1], information given to Koelle and Clarke[2] by recaptives, and the accounts of the first Europeans[3] to reach the area, and more recent academic work[4] all serve to provide elements for a reconstruction of the major historical events and trends of the 19th century in the Ndop plain. These will be examined in so far as they provide an historical context for the development of BABUNGO iron production in terms of the economic, demographic and political factors which may have promoted this intensive precolonial industry.

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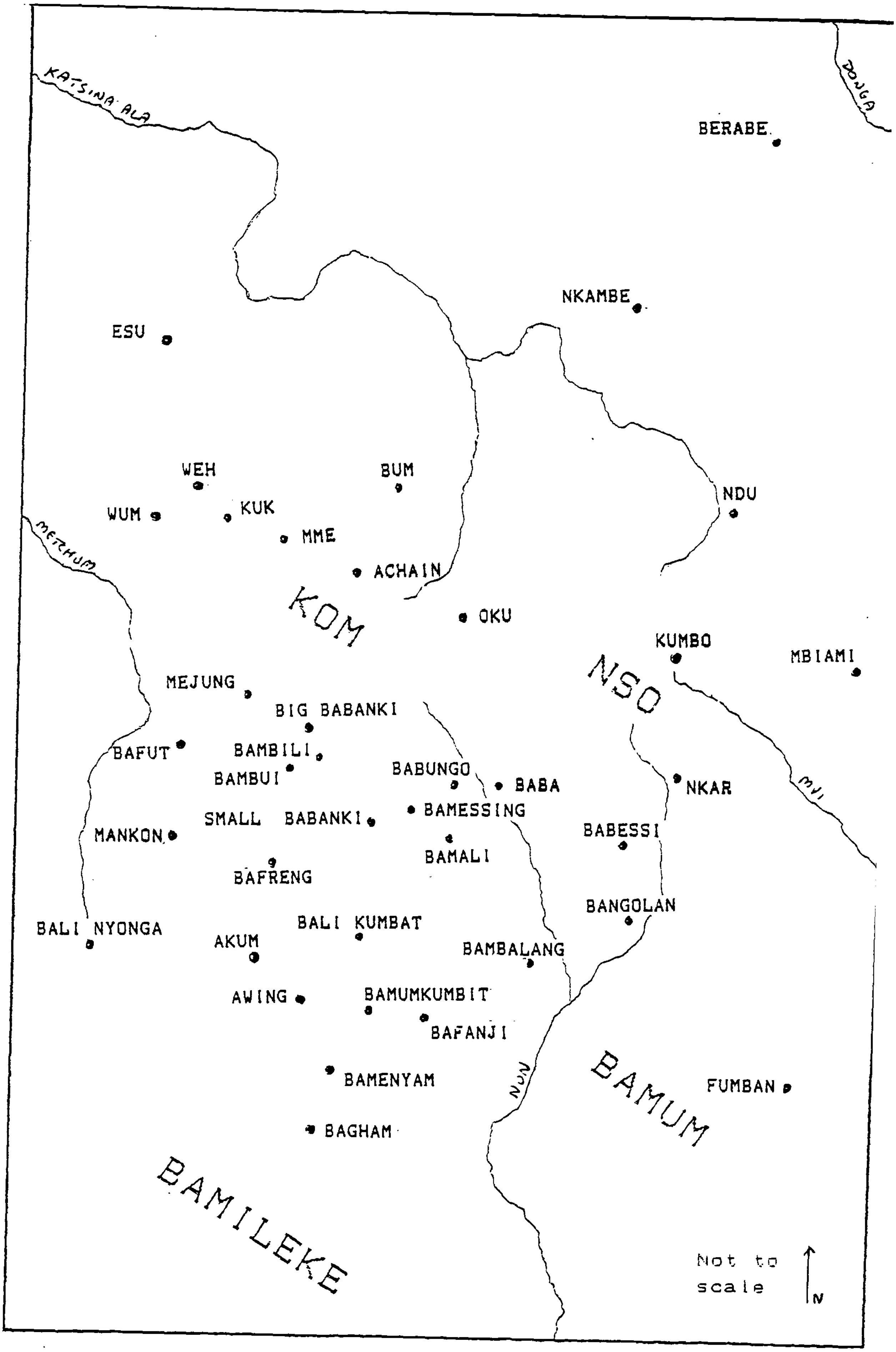
1. Warnier and Fowler, 1979.

2. Koelle, 1854. Clarke, 1849.

3. Zintgraff, 1895.

4. Most notably M.D.W. Jeffreys, P.M. Kaberry and E.M. Chilver.

MAP 4 NINETEENTH CENTURY GRASSFIELD CHIEFDOMS



The Periodisation and Impact of Early Raids

The migrations, raids and settlement of the BALI-CHAMBA have been dealt with extensively in the literature[5]. The dating and routes taken are of great importance for an understanding of the factors which may have promoted the enormous levels of BABUNGO iron production and for an estimation of actual output in the course of the nineteenth century. They are also a significant indicator of early trade connections[6]. There are a number of versions of the routes taken by the CHAMBA raiders.

One recorded by W.E. Hunt, in the course of his 1925 Assessment tour, from FONYONGA II of BALI NYONGA, takes the CHAMBA from KONCHA to TIBATI and TIKARI to war on the peoples of NGAMBE, YOKO and BAMUM. From BAMUM they burnt BAGHAM[7], raided BAMOENDJINDA, and BABADJU, and then BAFRENG and the surrounding area, and finally META. They then turned south and eventually at BAFU FUNDONG[8] their leader GAWOLBE was killed.

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[5]. Hunt, 1924, unpublished; Meek, 1931; Jeffreys, 1957 and 1962; Kirk-Greene, 1958; Kaberry and Chilver, 1961; Chilver and Kaberry, 1962, unpublished and 1968: Fardon, 1988.

[6]. It is unlikely that these groups were "flying blind", it seems more plausible that they were following up trade routes that may previously have supplied slaves, ivory, kola and ironware to northern markets.

[7]. NYAMSI, an informant of Koelle states that PARAM (BAGHAM) was devastated two years before his capture by the PAPIAK (BABA) in a sudden raid by the TEBALE who committed fearful atrocities. His capture was estimated to be some twenty two years before his interview with Koelle, which would place this raid c.1831.

[8]. The actual site has been identified by Barbier as JWITITSA.

A second[9] offered by TITA NJI II, a grandson of GAREGA of BALI NYONGA, brings the raiders to overrun the KAKA, crossing NSO to reach the BANTEN of southern BAMUM, then raiding NDOP[10], MUBADJI, and FENGGI, the NGIE hills, and adjacent areas, and finally camped at BAMUNYI whence parties raided in all directions, one group under DO MUSI raiding dwarf cattle around BAMBUI. After raiding northern BAMILEKE areas they returned via BAMUM and the story is told of the mysterious death of GAWOLBE, no mention being made of any military defeat. After GAWOLBE'S death the group is said to have broken up into separate elements that eventually formed the present BALI chiefdoms.

Another version is recorded by Moisel[11], writing in FUMBAN in 1907,

> " Auf der Flucht überrannten die Bali unter ihrem Häuptling Gawulwe (sic)....das Banssovolk und drängten nach Südwestern weiter über Babungo, Bamessing, Babanki-Tungo und Bamenda nach Bametà. Hier in Bametà teilten sich die Bali, die Balimuti zogen an den Katséna...., die Balinjonge unter dem Häuptling Fonjonge, einem Sohne Gawulwes, und die heutigen Balikumbad gingen über Widekum...auf Bafu-Fundong. Es kam zu einem grossen Kampfe, in dem die Bali unterlagen und ihr grosser Oberhäuptling Gawulwe, der sie von Kontscha fortgeführt hatte, fiel."

From this point they dispersed, part going north to form BALI KUMBAT, and part going east crossing the NUN to join the BATI, the remainder staying behind as BALI GASHU.

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9. E.M. Chilver, BALI fieldnotes, quoting a manuscript entitled "Nu Fon Ba'ni ka bini a", ie. how the BA'NI kings began, taken down from TITA NJI II in the 1930s. He was said to be old when the text was recorded.

10. Presumably the southern Ndop area to the south of the MONOUN lake.

11. Max Moisel, "Zur Geschichte von Bali und Bamum ", Globus, 93, 1908, pp.117-120.

This last account is not corroborated by the oral traditions of the northern Ndop plain which, in the case of BABUNGO, at least, mention a raid long before the settlement of BALI KUMBAT by mounted raiders called "MONTOE[12]" who are not linked to the "MBAISHU", or "red mouths" of other Grassfields traditions. Nor does Moisel's version account for the inclusion in BALI KUMBAT of groups of "BANTEN" from southern BAMUM such as the SANGGAM, SET, NGGOD, FULENG, and NGIAM. Mention of BABANKI TUNGO is clearly an anachronism, although the present site is one of the ancient KIJEM settlements. Yet, the actual settlement of BALI KUMBAT in the plain and its attacks on the chiefdoms settled there are well accounted for in local traditions. It seems plausible to see this as an example of the conflation of a series of events, or separate raids, into a single connected narrative.

There appears to have been an early raid on the Ndop plain which may, perhaps, be linked to one of the raids on KOVIFEM in NSO[13]. Reliable sources in BABUNGO, repeating testimonies passed directly from senior retainers to the barren FON NYWIFON (died c.1870), concerning events in the reign of his father NDOFWAN, describe these events. According to these accounts the "MBAITSHU" did not enter BABUNGO. Long before their arrival in the Grassfields and the settlement of BALI KUMBAT, there was a serious raid by

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[12]. E.M. Chilver has kindly drawn my attention to the traditions of the NTEM who state that the BALI passed to the south of them, and were their friends and called "KUTIRI MUNTU". It is of interest that the NTEM later become slaving clients of BANYO and one is tempted to speculate that this was not an altogether new role for them to adopt.

[13]. NSO sources ascribes the raid which occasioned the move to TAVISSA' to "the "MBANGSHU" who went through to BALINYOY and settled, and burnt all the towns except in KOM". This statement is not incompatible with a separate raid through NSO and the northern Ndop plain by the BALI KONTAN who were later displaced from their settlement site by BALI NYONGA.

mounted raiders[14] called the "MONTOE" who burned IBI [15], TAKUM, and "BELEBELE" (BERABE?) before sacking the NSO capital, and reaching the Ndop plain.

This is the occasion of the NSO "deception[16]" when the NSO FON, in flight from these raiders, sends a message to BABUNGO warning that the raiders are too strong to fight and that they should treat it as a sacrifice, tie their spears in bundles and store them away, and simply give themselves up to their fate. This the hapless BABUNGO supposedly do, only to suffer heavy losses before recovering their weapons and driving off the raiders.

The most economical proposition seems to be that this was an early CHAMBA raid, perhaps attributable to GYANDO's branch of the DAGHA prior to the establishment of KASIMBILA, or conceivably to a raiding group linked to the original PELI settlers at BALI-KONTAN, of whom little is known but who were eventually conquered and incorporated by BALI NYONGA[17]. In Moisel's[18] account it is at META that

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[14]. Similarly, BAFRENG oral traditions describe a serious raid by the BALI MUTE, bearing bows and arrows, at a much earlier point in time than the arrival of the BALI CHAMBA. This raid is said to have led to the temporary dispersal of the chiefdom. Kaberry, 1963 fieldnotes.

[15]. Mention of IBI, which certainly did not exist at this time, is a good example of later events colouring the perception of earlier ones. More interestingly the direction cited for this raid parallels very closely a late 19th century trade route along which palm oil from the MBEMBE area flowed north via BERABE to the DONGA and KENTU areas, Pollock, unpublished 1927.

[16]. This story should be set against later events in April 1906, when on the 27th the 6th Company of German colonial troops set out from BABUNGO to attack NSO aided by BABUNGO carriers. BABUNGO claim to have sent messages ahead to warn the NSO chief that the Germans, in possession of a machine gun, were unbeatable and should not be fought.

[17]. Chilver and Kaberry, 1966.

[18]. Moisel also relates that GADI (the GARRINDSCHI) followed MUDI to the KASIMBILA (GARSHIMBILA) area. This suggests a rather larger settlement at BALI-KUFOEM (continued...)

the BALI MUTI separate from the group under GAWOLBE and proceed north to the KATSINA valley. This "separation" may represent a juncture in the narrative that overlays two separate raids.

It is relevant that it is in FUMBAN that Moisel is given this information, seemingly relating to this earlier raid, to the exclusion of any account of CHAMBA raids or residence in BAMUM which might account for the incorporation of BANTEN groups in BALI KUMBAT. In this context it is worthwhile to recall the information given by Clarke's informants (1849) that

> " A powerful native chief is united with the BALI, and was assisting them in the destruction of the tribes around".

Included amongst the tribes said by Clarke to have been taken in this manner up to 1846, are the BALABALUNG, BA'NYA, BABASET, BAIYAQUE, BANGIA, BAKU and BASANGA who, may be linked to the PA LUNG, MANYA, PA SET, MAYAKWE, PA NGIAM, PA SANGGAM and PA KUM respectively[19]. These groups are from northern, western and southern BAMUM and elements of them have been incorporated into BALI NYONGA and BALI KUMBAT.

It also seems significant that none of the recaptives interviewed by Koelle or Clarke appear directly traceable to the chiefdoms of the northern Ndop plain or NSO[20]. The

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[18](...continued) originally than is indicated by the "conquering" of the KONNTAN remnant by the NYONGNEBA with the help of local allies. The presence of PELI (ie. KONNTAN) elements, such as the sub-chief GA KONNTAN, in BALI KUMBAT, and a similar sub-chief in BALI GASHU should also be noted. See also R. Fardon, "Raiders and Refugees", 1988.

[19] Personal communication from E.M. Chilver.

[20] The single NSO recaptive recorded by Koelle is enslaved in BAMUM. However, four other natives of NSO for whom no data are available are stated to be resident in Sierra Leone.

closest is a recaptive identified by Tessmann[21] as speaking the language of BANGOLAN, a chiefdom on the easternmost margins of the Ndop plain[22]. The topography of the plain is such that the combination of swamps and large fast flowing rivers may have served as a partial barrier to mounted raiders. These would then have passed either to the north through the chiefdoms of the northern Ndop plain which lie close to fordable sections of the rivers, or to the south of lake MONOUN and into the areas of BAGHAM and the northern BAMILEKE chiefdoms.

Two further points argue for at least two distinct raids. Firstly, elements displaced from BANGOLAN are found in the northern Ndop plain, NSO, and BALI NYONGA[23] and BALI KUMBAT, as well as appearing in Koelle's list of recaptives. This suggests not only that there were separate raids but also that there was a considerable period of time between them. The early raid on the northern Ndop plain was, by all accounts, a devastating affair in which a number of groups were scattered never to reform as individual polities again. In addition to those taken or sold to the north a large number of displaced persons would have been scattered in all directions. Some

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21. G. Tessmann, Die Völker und Sprachen Kameruns. Petermann's Geog. Mitt. 78, 1932.

22. Koelle's account appears to systematically reverse all the geographical directions, so that NGOALA is said to be north of PESI (ie. BABESSI), east of PAPE (ie. BABA), west of MBARA (probably BAMBALANG). If these directions are reversed a clearer picture emerges with both BABESSI and BANGOLAN located on the BAMUM side of the MONOUN.

23. The NGGONLAN are a small group in BALI NYONGA now represented by NJI KUNDUNG whose ancestor NGGELA with his following came from BANGOLAN, on the banks of the NUN, to join NYONGPASI and followed him to KUFOM, and then to NTANKA, their language is no longer spoken. NGGELA was succeeded by three NJI KUNDUNG all speaking the BANGOLAN language. The father of the informant could also "hear" a little of the languages of BABESSI, BABUNGO, and BAMESSING. (E.M. Chilver, BALI fieldnotes).

of these are likely to have been enslaved and sent to the coast but none appear in Koelle's lists. The implication is that this raid occurred before the naval patrols began[24]; perhaps as early as the 1780s, which would tie up with the first early raids on KOVIFEM[25].

The KWANSO area, immediately to the east of BABUNGO, was particularly hard hit by the early raid. Its impact led to the dispersal of groups from this area to NSO, BABUNGO, OKU, KOM, and even further afield. For instance, the NDOTITICA clan, has off-shoots in OKU, KOM, FUNGOM, BUM and MMENG, and claims an origin in this region. Other groups with links to this area include the KIJEM[26] (DJEM), FAA, KA, NTURR, OKU, NDZEREM, NZEERN, NSINGGONG and BABESSI. The OKU connection appears to be linked to the "NTURR" settlement at the head of the valley where much smelting debris is located and which was a major source of slag for the OKU iron industry of the 19th century. In OKU traditions the "NTURR" are associated with an earlier iron

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[24]: These naval patrols were based at Fernando Po from 1827-1832 so clearly there is likely to be a preponderance of slaves from the Grassfields taken shortly before or during this period. However, between 1808 and 1850 the patrols recaptured some 136,000 slaves, and a 1848 census of Sierra Leone indicates some 500 "MOKOS". (From C. Lloyd, "The Navy and the Slave Trade", 1849, itself based on Admiralty records and quoted by E.M Chilver and P.M. Kaberry, 1966). The earliest enslavement recorded by Koelle is 1795 (Hair, 1965).

[25]: Noted by Chilver and Kaberry, 1966. Tardits, 1973, also notes early mounted raids into BAMUM, possibly in the reign of KUOTU, from the north which may be connected to this early Ndop raid. See also Rein-Wührmann, 1925. Chilver, 1973, notes that "At the end of the eighteenth century, possibly, there are mentions of mounted raiders, referred to in the dynastic traditions of Bamum (apud Njoya), Nso, the War, Wiya and Tang.....".

[26]: VEKOBI appears to have been the centre for dispersal of this group but the titular senior of the NSO "DJEM" is FAI DJEM of KWANSO. According to the FON of BIG BABANKI the first FON of the KIJEM left "TIKAR" and died in KWANSO (E.M. Chilver, 1963 BABANKI fieldnotes).

smelting population that is variously said to have disappeared, intermarried with OKU, or simply to have been absorbed by them.

In this context it is of great interest that one small descent group from here is said to have brought the idea for a innovative clump furnace that underpinned the boom in iron production in BABUNGO later in the century. The history of this family, as told in BABUNGO, brings it, as a result of the "MONTOE" raids, from the KWANSO[27] area to a site called EWING-NSHINGAU[28], located just above BABUNGO on the trade path to KUMBO. In BABUNGO traditions this group is linked to the huge scatters of smelting debris found on the trade path at NDZEREM-NYAM and NTURR.

As far as the later CHAMBA raids are concerned BABUNGO traditions record that FON NYWIFON, who died without male issue c.1870, after an extended reign, during which BALI KUMBAT settled on the western margins of the Ndop plain, made it a practice to buy male and female slaves and marry them together so as to fill the ranks of the "royal" clan. The main sources for these slaves were BAMILEKE traders bringing slaves purchased from the chiefdoms of BAGHAM, BAFFOUSSAM, BAMUM and BANSOA. It is not inconceivable that the activities of the CHAMBA raiders in these areas had created a flow of slaves, a little of which was being drained off to the northern Ndop plain in return for vital supplies of tools and weapons. Demand for the latter may have risen considerably at this time, not only to supply weapons for use in these insecure conditions, and tools needed to replace those lost in the course of the dispersal of raided groups, but also to fill the gap in supplies created by the disruption of other traditional centres of manufacture of ironware. For instance, the expansion of

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[27]. At that time it is said to have been called "MBETWOE", by BABUNGO, at least, and YIGHAU comes as "TU-MBETWOE", ie. not as a recognised FON.

[28]. This was the site of a small market said to have been attended by traders from NSO, KWANSO and BABUNGO.

BAMUM[29] almost certainly led to the permanent disruption of an iron smelting tradition that had previously existed in the area. There are strong indications that the NDZEREM, NZERN, PAPIAKUM and PA'TI were producing ironware before their expulsion from BAMUM. The demand that remained to be satisfied by surviving peripheral areas of production would have been enormous. It would have included not only the requirements of the entire BAMUM population for ironware but also the needs of those external areas previously supplied from the disrupted centres of production.

In a similar vein when NYONGPASI's group returns to the western Bamenda plateau from BAMUM it settles first with BAFRENG. BALI traditions[30] indicate that on the first drive through by the BA'NI under GAWOLBE both BAFRENG and MENDANKWE, hard pressed by BAFUT, were scattered. On their return under NYONGPASI the BAFRENG are regrouped, become an ally, and supply the base from which the KONTAN were attacked. BAFRENG was renowned for smithing and the BALI were anxious for regular supplies of tools and weapons. So long as these were supplied, not through tribute but by trade[31], BAFRENG had nothing to fear.

This implies that by this time the BALI were short of iron for weaponry and that this had not been a problem on their first sweep through the area. BALI KUMBAT traditions[32] state that, following the break up at BAFU FUNDONG, they retained the BA'NI iron workers that were brought with them from the north. The BALI NYONGA under NYONGPASI are said to have acquired iron workers from the

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29. The expansion of BAMUM and the depopulation of areas away from the centre seem likely to be linked to these CHAMBA raids, see Clarke above.

30. E.M. Chilver, BALI fieldnotes.

31. Hutter, 1902, confirms the position of BAFRENG as a trading ally of BALI NYONGA.

32. P.M. Kaberry, BALI KUMBAT fieldnotes 1960 and 1963.

PA'TI[33]. Ankermann [34] confirms iron smelting by BAFRENG [35] but it is also possible that it was passing on ironware from the northern Ndop plain to the Western Bamenda plateau at this time.

[33]. The ancestor of the PA'TI iron workers is said to have fallen from heaven close by the first palace site of NYONGPASI after the defeat at BAFU FUNDONG. This is a good example of an earlier mythological tradition ,associated with a family of smiths, that has become attached to the eponymous ancestor of BALI NYONGA, as a heroic figure himself.

[34]. Ankermann, 1910.

[35]. BAFRENG informants claimed to have learnt iron working from BABUNGO and KOM but their description of the process clearly indicates open bowl recycling of slag, Kaberry 1963 fieldnotes.

The Settlement of BALI-KUMBAT

Following their arrival and settlement in the Ndop plain, c.1840-50, the CHAMBA under GALABI appear to have adopted a predatory policy vis à vis their immediate neighbours. The western part of the plain, including BAMESSING, appears to have been most disrupted. However, claims to conquest and suzerainty made by the CHAMBA ought not to be accepted without serious qualifications.

The GA, or chief, of BALI KUMBAT made the following claims in a letter to the D.O. and Resident in 1947 :-

> He claimed control off all the chiefs in the NDOP area, on historical grounds. Stated that at first they had a boundary with NSO and BABESSI, and with KOM at a hill near BABUNGO, which lay within his old lands. He also claimed a boundary with BAFUT and BIG BABANKI and with BAMUM near the river NIN (sic), and MBOYAKUM and GOLAN[36] lay within it. He had a boundary with BAGHAM and BAFANJI lay within it. BAMBULEWE, BAMBILI and BAMBUI were also within the borders of BALI KUMBAT. He complained that his German flag was taken away from him because of a fight between BALI KUMBAT and BAMBALANG.
>
> A village defeated in war had to present leopards and elephant tusks and no treaty was cut with conquered villages but rules were given to their big men in the GA's compound. Their observance was put in the hands of a BALI KUMBAT "TAMNDJI" called "MAKPANGBE" who would escort those bringing tribute at LELA to the GA. This tribute took the form of oil, fish, cowries, brass bangles, cloth and ironware. The cloth was redistributed to important people such as princes, retainers and titleholders. The oil went to

[36]. ie. BAMBALANG and BANGOLAN.

women. BABUNGO brought hoes, cutlasses and small knives. BAMBULEWE and BAGANGGU brought cloth. BAMBALANG brought fish.

It should be noted that the BALI KUMBAT were relatively late[37] in making contact with the early German colonial administration. They had in no way succeeded, as the BALI NYONGA appear to have done, in cementing, or even creating, hegemony over neighbouring groups under the auspices of the nascent colonial administration. In fact, the situation appears to have been quite the reverse with any influence BALI KUMBAT might have had being lost as each chiefdom in the west of the plain established separate relations with the administration[38]. It is likely that the 1947 document represents an attempt not only to reestablish lost influence but also to claim rights it would have had if it had been in a position to exploit relations with the German colonial administration, in the way that BALI NYONGA had done at an earlier time[39].

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[37]. (D. Kbl. Vol. 14 1902-3) 4.3.1902 "A legation came from chief GABANI of BALI KUMBAT to accompany the expedition to his seat. Unlike the neighbouring BALI the BAKEMBAT had not been in touch with Europeans...".

[38]. Interestingly, BABUNGO was far more successful in its dealings with the early German administration. Podevin notes in his diary in January of 1916 that the BABUNGO FON had in his possession two "German books", one of which dated 11.11.1903 describes him as "Oberhaüptling" with the following towns under him:- OKU, BANCHINGO, BABA, BAMBALANG, BANGOLA. Podevin was told in 1916 that only OKU and BABA remained.

[39]. The 1947 letter should be set against a passage from the 1925 Assessment Report "BALI KUMBAT claim that, inter alia, BABA, BAMESSING, BAFANJI, BAMBALANG and BAMALI were all conquered and paid tribute of leopard skins to BALI KUMBAT chief. They also claim that others, including BAMUNKA, BAMESSI, BABUNGO, and BANGOLAN were attacked and defeated but could never be made to pay this tribute.

BAMESSING and BAMALI admit to paying this tribute of leopard skins to BALI KUMBAT.

BAMBALANG and BABESSI admit defeated by BALI KUMBAT.

BABUNGO admits they were attacked but not defeated."

It seems clear that this section of the CHAMBA, under GALABI, did not arrive with such forces to enable them to lay waste all before them and so carve out an empire based on conquest. The displacement of the BAMUMKUMBIT from its fastness is said in one tradition to have been accomplished by trickery[40] and stealth not by force of arms. The raids that BALI KUMBAT is said to have made on the chiefdoms of the plain were not made by them alone but in concert with temporary allies adopted for the occasion who might shortly afterwards find themselves the object of the unwelcome attention of the BALI KUMBAT. It seems unlikely that BALI KUMBAT actually conquered[41] any of the Ndop plain chiefdoms, rather it created a high degree of insecurity in the area through a policy of opportunistic brigandry.

Two chiefdoms, BAMESSING and BAMALI, did admit to having submitted to the domination of BALI KUMBAT, in terms of carrying leopards, and other "noble" game, and making regular tribute[42]. However, this submission appears to have occurred under circumstances not directly connected to conquest by BALI KUMBAT.

The second great raid on the Ndop plain may have taken place c.1860-70[43]. According to BABA informants :-

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40. The story is that BALI KUMBAT invited them to come down from their hill and share in the butchering of an elephant, and then in the absence of the BAMUMKUMBIT males seized the hilltop.

41. This is not to say that BALI KUMBAT did not defeat other chiefdoms but rather that such victories in the battle field did not entail incorporation as "conquered" subchiefdoms under the hegemony of BALI KUMBAT.

42. Schmidt, 1955, notes on page 76 that "Angeblich bringt er (SUN-KWAI) jede Woche einmal dem Häuptling von Bali-Kümbat Botschaften und einer Gabe unseres Häuptlings. Früher war diese eine Tributzahlung, wie ich aus den kurzen Daten, die ich uber die Geschicte des Stammes hier erhalte, mir zusammenreimen kann".

43. KOM traditions account for only one "BARANYAM" raid which they claim to have repulsed. This is confirmed (continued...)

"In the reign of NKANGAPER a man from BANYO, called KAIGAMMA[44], came with the "red people", the PIANSHU, on horses with bows and arrows to fight. They came from BANYO, passed through BAMUM, and then to NSO near MBIAMI, from where they followed the border through the MBO plain to NDOP, where they attacked BABA, BAMUNKA and others before returning via NSO[45]."

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[43](...continued) by the accounts of Ndop plain informants that link this to the second great raid on the plain. KOM traditions also relate that BAMESSING, inter alia, took refuge in the BELO valley and that YU succeeded when they were still there. Schmidt, 1955, notes on page 69 that "Um 1870 herum, als das Dorf von seinen Nachbarn bedroht wurde und viele Jahre verlassen dalag, soll hier ein Paradies für Elefanten gewesen sein und auch für "Buschkühe", wahrsheinlich Büffel, deren letzter erst 1930 erlegt worden sein soll". See following note for further discussion of dating of this raid.

[44]. The name KAIGAMMA crops up in a number of references in P.M. Kaberry's fieldnotes on NSO clan histories. FON NGGASHONG in a conversation with her stated that the KAIGAMMA MBAM of BANYO was raiding in the 1870s on the NTEM/MAPE/MAIRIN areas. Also, in an appended note to the DO clans of NSO , E.M. Chilver records Hurault's information that the forces of USMANU, reigned c.1876 and d.1893, raided NTEM under the leadership of YERIMA GAGAMBA, perhaps KAIGAMMA MBAM, who is said to have made an exceptionally devastating and lucrative raid on the "TEM". There is also a mention in the notes on FON O TABAA, of WAM, the KAIGAMMA MBAM, stating that he was active in the area of KINGOMEN before c.1880. If the BABA identification refers to this same individual then the raid seems unlikely to have been before 1860 at the earliest. That the leader of the raiding band was known to people of the northern Ndop plain is confirmed by BABUNGO traditions that record that the raid was led by a man known to them as KOMETA BWEBWII, of KOM or BABESSI origin, who had once lived in the FINTENG ward of BABUNGO and then later travelled to BANYO.

[45]. According to BABUNGO and KOM traditions this raiding party went from the NDOP plain to KOM where it was repulsed and then to the northern BAMILEKE area where good supplies of gun powder enabled the local people to drive them off. Following this setback they returned the way they had come.

Jeffreys in his "Tribal Notes[46] locates the camp of these FULANI raiders on the high ground between BAMALI and BALI KUMBAT. The latter claim that these raiders were unable to get their horses[47] up the hill to attack them. This may be less than the whole truth of the matter. The FULANI camp, only a mile or two from the BALI KUMBAT palace, would, itself, have been susceptible to attack from this direction. The implication is that these FULANI were in league with BALI KUMBAT[48], just as Clarke (1849) signals an alliance between the CHAMBA and "a powerful native chief" at an earlier point in time.

Whatever the case, the impact of the FULANI raiding camp was such that BAMESSING was scattered with sections taking refuge in META and the BELO valley and its iron production ceasing entirely, while BAMALI sought refuge with BABUNGO. Evidence from KOM[49] suggests this displacement lasted for an extended period of time. Two possible reasons may be adduced for this. Either that the FULANI camp remained in place over a number of years, which seems unlikely, or, more plausibly, that return was

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[46]. M.D.W. Jeffreys "Tribal Notes on the Tsamba Tribe", no. 26 of his "Tribal Notes" : (collected between 1936-45) "In his (GALABI) time the Fulani raided this part of the world. They made their camp at PUTSELLA, on the high ground between BALI KUMBAT and BAMALI. From there they raided BAMALI, BAMESSI and BABA. They attacked us but failed to dislodge us from our mountain fastness. The Fulani then returned the way they came."

[47]. This is clearly untrue since the BALI KUMBAT were, of course, able to get their own horses up the hill. Furthermore, had these FULANI wished to lay siege to BALI KUMBAT on its hilltop, resistance would have been short lived, especially in the dry season when the absence of an available water supply would have made the position untenable.

[48]. This would not have been a departure from previous practice as NJOYA records in the "Histoire" that the "PARe NKUMBERE" had earlier taken a hand in the second raid on FUMBAN that came from KONCHA via BANYO.

[49]. See earlier note.

hindered by the presence of an aggressive BALI KUMBAT. Accordingly, it is probable that, weakened and dispersed, these groups could only regroup and resettle under terms set by the BALI KUMBAT. These are the circumstances most likely to lie at the base of claims to dominance over BAMESSING and BAMALI[50].

The smaller iron working chiefdoms of BAFANJI and BAMENYAM may have suffered a similar fate or simply taken their refuge with BAGHAM in the face of harassment from BALI KUMBAT. These chiefdoms returned to their original sites early in the German period[51] but this process of return seems to have been going on in the form of a slow drift back for about a decade before this[52].

Although the FULANI raiding camp may have initially prompted flight and search for refuge elsewhere it seems as if pressure from BAMUM, perhaps in concert with BALI KUMBAT, was the dominant factor in maintaining the high levels of insecurity in the area in the last quarter of the century. The so-called alliance[53] that is said to have been struck between these two aggressive polities probably represents no more than a non-aggression pact reached following disputes over the spoils of elements in the plain disrupted by the Fulani raid. Accordingly, it is only after the defeat of BAMUM by NSO that pressure eases up and displaced groups are able to return.

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[50]. In this context it should be noted that BAMESSING and BAMALI, alone amongst the chiefdoms of the Ndop plain, deny that BALI KUMBAT had already settled prior to this FULANI raid.

[51]. Ndop Assessment Report, 1925. Para. 52. "The arrival of the first Europeans....BAFANJI again left BAGHAM and settled in their own town once more".

[52]. "With the permission of the station the BAMENJANG were allowed to leave BALI-BAGHAM and return to their old place. They transferred the village 2 hours away from the present one. The return migrations have taken place since c.1890." (G.B. II. 167 of 19.1.1911).

[53]. Warnier, 1983.

BABUNGO claim to have been attacked, but not defeated, by BALI KUMBAT in what appear to be quite extraordinary circumstances. The BABUNGO FON reigning at this time, NYWIFON (died c.1870), was barren. Taking the advice of his diviners, and contrary to the wishes of the people, he retired alone, save for one wife and his mother, to a site on the escarpment, called SCHAALE, immediately to the north of BABUNGO beyond the confines of the defensive trench.

NYWIFON was snatched from here in the night by a party of raiders from BALI KUMBAT returning from an attack on a section of KOM and taken back to BALI KUMBAT. In spite of payment of a heavy ransom of cowries and ironware, he was held for some considerable time. Eventually, according to differing versions of the tale, he escaped either with the help of the guardian spirit of the BABUNGO chiefdom or the connivance of a wife[54] of the GA of BALI KUMBAT.

It appears likely that, up to the point NYWIFON is seized, BABUNGO and BALI KUMBAT had been on relatively good terms. It is hard to imagine, given the normal predatory activities of the BALI KUMBAT, that NYWIFON would have exposed himself to this danger. More especially since many of the refugee groups scattered in an arc to the north of BABUNGO had already been attacked by BALI KUMBAT, perhaps with the acquiesence of the former[55]. It is possible that

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[54]: This appears to be the most likely explanation of his escape from BALI KUMBAT, especially since there is also a tradition that one of the BALI KUMBAT FON's wives, perhaps the same one, stole his war medicines and ran back to her home chiefdom. (Warnier, 1983).

[55]: Some evidence of this kind of activity is recorded by P.M. Kaberry in her 1963 BAMALI fieldnotes : "When BAMALI were in refuge at NKUNSUO, BABA arranged with BABUNGO to kill the BAMALI and take their women but they heard of the plot and escaped after guns were fired." Also BABA informants claim that FUWE NKANGAPER saw that NGGANGARE (BANGOLAN) were settled on the hill, called RON, located between BABUNGO and KOM. He raided them for slaves that he sold for cloth, dane guns and gun powder. However, according to BANGOLAN informants they were, in fact, attacked here by BALI KUMBAT so they fled to NGOFAWNTE in BABUNGO, where they remained until the Germans arrived.

an unmolested BABUNGO was important to BALI KUMBAT in the same way that BAFRENG were in supplying necessary weapons and tools to BALI NYONGA, and that, in return, BALI KUMBAT was an important source of slaves for the manpower hungry labour intensive iron industry of BABUNGO. Certainly no conflict prior to the seizure of NYWIFON is recalled and following his escape and the defeat of the combined forces subsequently marshalled under BALI-KUMBAT to attack BABUNGO good relations were soon reestablished.

The account of this attack illustrates the way in which BALI KUMBAT operated, forming temporary alliances in return for a share in the spoils[56], and then just as likely to turn on whomsoever seemed weakest or offered the richest pickings[57]. Eight "chiefdoms" said to have banded together with BALI KUMBAT to attack BABUNGO comprised BAMUNKA, BABA, BAMALI, BAMESSING, KOM, BIG BABANKI, SMALL BABANKI, and BALI GASHU. Similar, and apparently[58] more successful, attacks were made against BABESSI[59] and

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[56]. BALI KUMBAT ranged widely in the course of its predations, for instance, " The sub-town of MEJUNG which is near BABANKI was rescued in warfare from the clutches of BAFUT and BALI KUMBAT by NKOM to whom it became feudatory." FILE N.W. 143 (1173) - MEJUNG - KOM AREA (ATIN).

[57]. See Kaberry 1963 BAMALI fieldnotes: "BAMALI were not attacked by BALI KUMBAT who were cunning and saw that BAMALI were strong so they got them to help them against others. But BALI KUMBAT would also go to BAMUNKA, etc. and get their help in another raid. They were very cunning and played off the different groups against each other". Similarly, following the defeat of the combined forces attacking BABUNGO after NYIFON's escape, the BALI-KUMBAT group turned on one of its temporary allies, BABA, and seized the unguarded property of its FON.

[58]. Since the chiefdoms concerned admit defeat (but not submission).

[59]. Drummond-Hay was given the following story in 1925, "BABESSI were defeated by BALI KUMBAT at MEMBAN. This personal account was told by WOTODZU, now very old and blind, but as a young girl was a wife to BABESSI FON NCHO, fafa of present FON, then at MEMBAN. The BALI KUMBAT chief, GABANI, came there and captured her along with

(continued...)

BAMBALANG. These were set piece battles, almost certainly infrequent, where the intention was to reach the palace and seize the family and material wealth of the FON.

The more frequent activity of the BALI KUMBAT was a surprise raid at dawn in which women were seized and carried off. Elderly BAMUNKA informants were able to recall fleeing as children into the swamp forests[60] with the womenfolk, while the men remained behind to guard compounds and fight off the BALI KUMBAT. In the last such raid four of the wives of the FON and three other women were snatched.

The major impact of the BALI KUMBAT on the Ndop plain was to raise the general level of insecurity through opportunistic brigandry which, together with the perceived threat from BAMUM, led to a restructuring of settlement in the last decades of the 19th century. Out of range of attacks from BAMUM but still subject to BALI KUMBAT occasional predations were the refugee settlements of BABESSI, BAMBALANG, BANGOLAN and BABA clustered around the stable core of the BABUNGO chiefdom. Together with BAMUNKA, and to a lesser extent BAMESSING, these chiefdoms formed almost an economic confederation developing highly profitable middleman roles in regional trade moving BABUNGO

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[59](...continued) others and took them to BALI KUMBAT. She was given to SU, FON of BABANKI TUNGO, a sub-chief. She ran away but was captured by BABA people at BAMUNKA and sent back to SU. NCHO then paid 2 men to SU for her and she saw these two men. About a week after this attack on BABESSI GABANI went to make war on BALI NYONGA but was killed." Given the likely age of this women at the point that she told the story to Drummond-Hay, these events may have occurred c.1870.

[60]. The location of the settlement of BAMUNKA illustrates the point that it was this terrain with its thick swamp forests, watercourses, and swamp draining only late in the dry season, that offered the best refuge from external attack. The open grasslands of the high lava plateau offered no such refuge. This may explain, in part, why the latter was depopulated in the early part of the 19th century.

ironware out of the plain to markets in the region and bring in palm oil, slaves and long distance trade goods in return. Freed from the costs of transporting its products BABUNGO producers are likely to have attained even higher levels of output.

The chiefdoms of BAFANJI, BAMENYAM and BAMUMKUMBIT similarly appear to have clustered for protection around BAGHAM to the south[61]. One effect of the displacement of the two chiefdoms of BAFANJI and BAMENYAM must have been to cause them to cease iron production, which could not, apart from minimal smithing of scrap, be continued under conditions of refuge in BAGHAM. This situation is likely to have increased the demand for ironware from BABUNGO. Warnier (1979) has signalled a recrudescence of the BAFANJI and BAMENYAM industries which can only date from the period of their resettlement in the early years of the German administration. It was not the case that BALI KUMBAT disrupted trade links between the northern Ndop plain and BAGHAM and the northern BAMILEKE chiefdoms. As will be shown in a later section, traders from BABA, BAMUNKA, BAMBALANG and BANGOLAN were all engaged in a triangular pattern of trade whose apices lay at KUMBO, FUMBAN and BAGHAM.

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[61]. This may underlay the statement that "Hunting and fishing were done in all the villages of the Ndop plain by BALI KUMBAT men and women without question from the villages." Kaberry, 1963 BALI KUMBAT fieldnotes. The implication being that much of the territory was at times unoccupied.

The Final Decades of the 19th Century

"In a primitive world where competition was the law of physical survival the momentum of industry was usually in proportion to the amount of pressure exerted immediately beyond the ethnic frontier."

H.C. Richardson 1934

For the chiefdoms of the Ndop plain the major event prior to 1900 was not the arrival of Zintgraff nor the establishment of the "BALIBURG" station but the defeat of the forces of BAMUM by the southern MANJONG warrior clubs of NSO c.1885-88[62]. However, the importance of the threat of an aggressive and expanding BAMUM, not made explicit in the oral traditions, is masked by feelings of insecurity engendered by the predatory activities of BALI KUMBAT.

The true impact of the threat from BAMUM can be gauged from its attacks on NKAR[63] in the 1880s, the depopulation of the KWANSO valley or, at least, the inhibition on resettlement of this fertile area, and the movement out of range of attack by BABESSI and BAMBALANG. It is extraordinary that BABESSI and BAMBALANG, both heavily fortified with extensive entrenchment, should have given up these settlements to take refuge in the vicinity of BABUNGO, where they were vulnerable to attack by BALI KUMBAT and were harried by BABA. It appears that prior to 1888 the borders of BAMUM, in the sense of the limits of

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[62]. Chilver and Kaberry, 1966.

[63]. NKAR had earlier been pushed south from TAVESSA by NSO. According to Jeffreys (1945) "these Banso Tikars...attacked the Nkat (sic) and conquered them. The craft of the foundry and of the smithy disappeared from this area. Only numerous slag heaps proclaim the place's ancient industry." The attribution of this debris on oral data alone is uncertain but it does seem clear that the emergence of NSO was associated with the cessation of the large scale mode of iron production.

its effective strategic power, lay hard up against the fastness of BALI KUMBAT[64]; the area of refugee settlement around BABUNGO to the west of the river KONKOELONG, and the south western marches of NSO and NKAR.

The defeat of BAMUM on the battlefield and the symbolic importance of the taking of the head of NSANGU changed this situation radically, seemingly almost from one day to the next[65]. Virtually immediately BABESSI returned to its entrenched settlement site, only to come into conflict, early in the present century, with NSO expanding into the KWANSO valley now the threat from BAMUM had passed. BABA claims to have driven BAMBALANG away from its refuge site around about this time. There may be some truth in this but it is equally likely to be the case that they, too, felt that the effective range of power of the BAMUM had been reduced sufficiently to make it safe for them to return to their entrenched site in the centre of the plain[66]. It was only some years after the building of the station at Bamenda that BANGOLAN felt secure enough to

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[64]. The first German patrol to make contact with BALI KUMBAT on the 4th of April 1902 found the paths guarded against attack by the BAMUM. (D. Kbl. Vol. 14 1902-3).

[65]. The German colonial administration noted this situation in the following terms :- "Due to the invasion of the FULLAHS and the accompanying fights with the tribes driven out by them, the smaller tribes of the NUN valley and what is today BAMUM, were pushed together in the eastern NUN valley. The death of the BAMUM chief and the subsequent upheaval in BAMUM eased the pressure in the NUN valley. Gradually, and without suggestion from anyone, the pent up tribes again took possession of their previous places on the upper NUN, north of the road BAGAM-NUN, such as for instance the BABESSIE, BAMBALANG, BABANKI TUNGO, BAMEKUNG and BAFANJI. BAMENJANG near BALI-BAGAM too had been allocated another place of settlement by the high chief very near BALI-BAGAM, which had turned out to be unfavourable." (Ref. G.B. II.167 of 19.1.1911).

[66]. In 1903 Ist Lt. HIRTLER on his journey from BAMENDA to BABESSI was able to observe that "The road from BANGOLAN to BABESSI was strewn with the ruins of farms of the former BAMBALANG". (D. Kbl. Vol. 14 1902-3).

move closer to its original settlement site but it remained on the far side of the MONOUN away from BAMUM[67].

BABUNGO had, itself, reacted to the tripartite pressures from BALI KUMBAT, KOM and BAMUM in the 1880s. Even within the confines of the war trench it had contracted so that outlying compounds, especially to the south around the old palace site at NTONDO, had been abandoned and people from here clustered around the central area of the market and palace, within the three core wards of FINKWI, FINTENG and MBUKANG. It was only after the Germans had begun to establish control in the first years of the present century that this unoccupied territory within the war trench was resettled.

This situation had not been without some effects on the levels of production of iron in so far as those smelters away from their compounds and furnaces provided a floating body of manpower that was able to take up the slack of any under used foundries in the centre of the chiefdom. This situation may also have served to facilitate the adoption of a mode of labour access to capital equipment not linked to descent group affiliation. This may have enabled iron production to escape the bounds of the "domestic mode of production" in so far as non kin were able to use foundries that might otherwise have not been operated at full capacity.

Finally, BABUNGO's relations with KOM in the second half of the 19th century and the availability of external sources of women to be taken as wives may well represent a major factor in the promotion of BABUNGO iron production. The contiguity of KOM, a dispersed matrilineal society with avuncular rules of residence, and the compact chiefdoms of the northern Ndop plain, with patrilocal residence,

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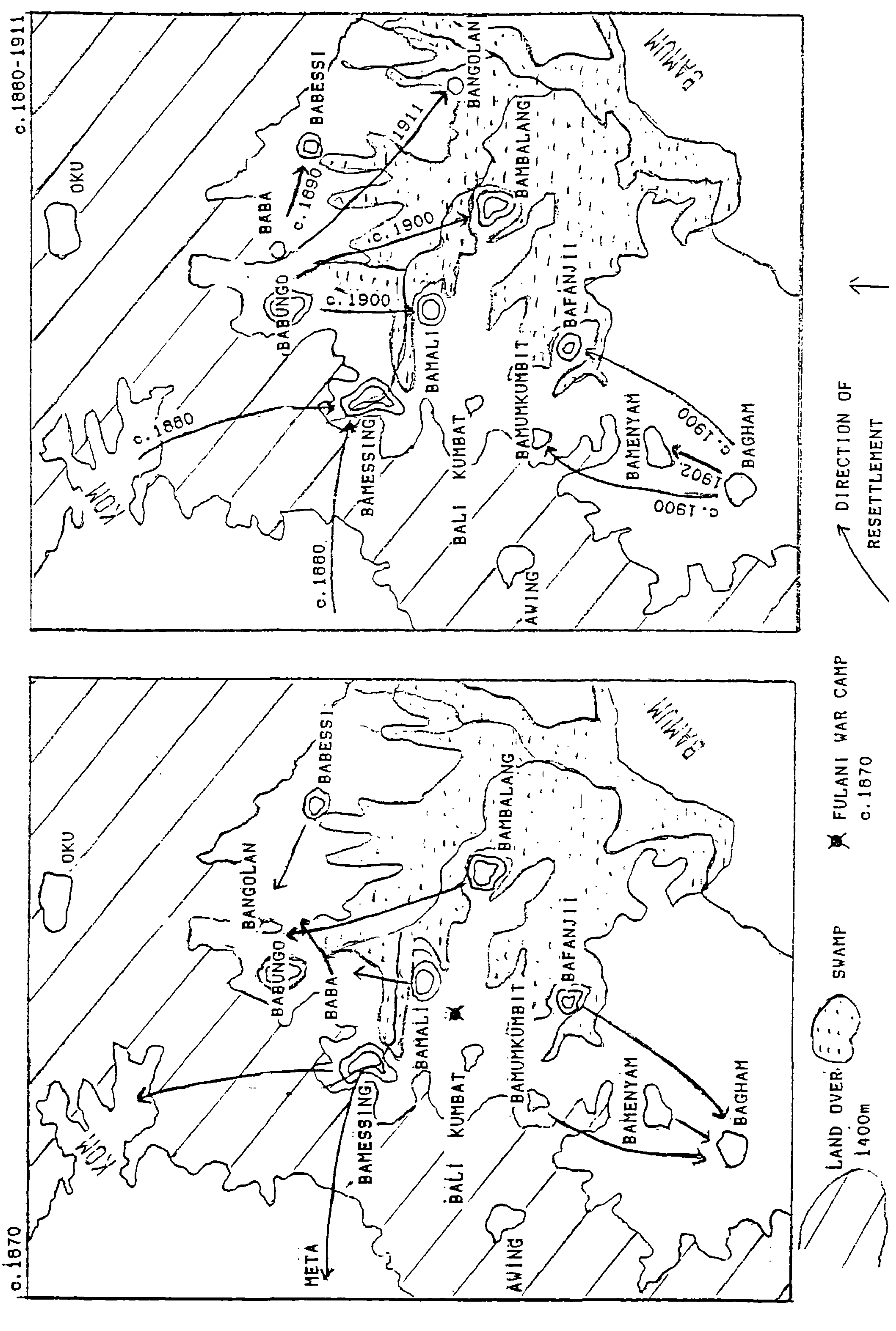
[67]. This resettlement by BANGOLAN took place in the dry season of 1911 and the exodus from BABUNGO of some 2200 of its people was witnessed and described by Vollbehr (1912).

MAP 5

THE NDOP PLAIN : SETTLEMENT AND RESETTLEMENT c.1870-1911



presented problems in the realm of external marriage alliances. A chiefdom such as BABUNGO would have put its autonomy at risk should it have accepted wives from KOM. In the eyes of the latter the offspring of such unions belonged to the MBr. and the element of political alliance inherent in marriage in a matrilineal society would have threatened the political independence of the smaller Ndop chiefdoms.

Contrary to the situation described by Warnier[68] for the Bamenda plateau, where 30-50% of women come from other chiefdoms in marriage alliances, genealogical data from BABUNGO support the claims of local informants that such alliances only became common in the colonial period. Previously, there were only few marriage alliances with external trading partners, which may reflect the restricted participation of BABUNGO in regional trade. Many women were obtained externally but these were bought as slaves, the same verb being used for such a purchase as for any other item of trade. The majority came from BAMUM, but a not inconsiderable number came from KOM. No effective social ties were maintained as a result of marriages arising from such transactions. Instead, annually, a ritual sacrifice of dried mudfish, palm oil and raffia wine would be made on the path leading to the area of presumed[69] origin of the ancestors of the woman.

The ideological context of this lack of external marriage alliances is couched in terms of insecurity and fear, which are precisely the conditions adduced to account for the compaction of settlement within entrenched confines. It seems plausible that these attitudes, in fact, represent some form of ideological rationalization,

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[68]. 1975 and 1983.

[69]. A female slave sold by a trader from KOM would often have been captured from an area to the north of KOM, such as MME. It also seems clear that slaves captured in the Ndop plain by KOM "raider/traders" would be sold, in turn, in areas to the north of KOM.

or justification, or simply a mask, for the general centripetal tendencies of the social and political system. We shall return to this question in a later section dealing with the nature of strategic power relations between polities in the region and the links with mystical bases of power and its objectification in highly prestigious and ritualised items of material culture.

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FIG. 3 **BAMESSING BLOOM**

Claimed by informants to be from open hearth recycling furnace. Photograph by J-P Warnier.

The Case of BAMESSING

BAMESSING, located immediately to the south-west of BABUNGO, was the second major centre[70] of iron production in the Ndop plain in the first half of the 19th century. However, physical evidence and oral traditions suggest that large scale production, employing clump furnaces, had ceased by c.1870-80 and that smaller scale production continued from this period into the present century using a technique of recycling old slag in open hearth furnaces. The decline of this industry is vital to an understanding of the historical, economic and technological factors that promoted such enormous levels of production in BABUNGO since the peak of its production, in fact, coincides with this decline. The devolutionary shift in BAMESSING iron technology may also throw some light on the much earlier cessation of large scale production in the areas of KOM, OKU and NSO to the north of the Ndop plain.

Until now[71] it has been assumed that BAMESSING abandoned large scale production in the face of increased transportation costs and loss of southern markets due to the predations of BALI KUMBAT on its traders. However, evidence from neighbouring chiefdoms of BAMUNKA and BABA suggests that their traders were able to engage in trade with BAGHAM and northern Bamileke markets without undue interference from BALI KUMBAT. The latter did put pressure on the chiefdoms of the northern Ndop plain through opportunistic raids to seize women and take slaves. However, these activities were directed against those chiefdoms who, unlike BAMESSING[72], refused to pay tribute and so acknowledge the suzerainty of the GA of BALI KUMBAT. BABUNGO suffered in this way with its FON being seized and

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70. This is clear from the evidence of 40,000 cubic metres of smelting debris recorded by Warnier.

71. Warnier and Fowler, 1979. Warnier, 1983.

72. See above.

held hostage by BALI KUMBAT. In the latter part of the 19th century BABUNGO was also under intense pressure from its northern neighbour KOM. Accordingly, conditions of insecurity and military pressure can not be used to explain the cessation of large scale iron production in BAMESSING.

It was argued that the BAMESSING iron industry suffered a significant blow c.1880. Prior to this date the main currency in use on the Bamenda plateau had been the iron hoe. It was used for bridewealth payments and all monetary transactions of any importance. However, between 1860 and 1870, brass rings of the Calabar trade reached this area via the Cross river basin and by 1880 it appears that they had completely replaced the use of iron hoes as a currency[73].

The assumption was that while considerable economies of scale could be achieved with the larger furnace type, concomitantly large inputs of materials and labour were required in order to produce the iron. In a situation of reduced or fluctuating demand that might have resulted from the abandonment of a hoe currency to the west, outputs from the large furnaces were not easily sold and, as a result, BAMESSING smelters discontinued this form of production. In its place they appeared to have adopted a cruder technique of recycling old slag in an open hearth furnace that required much smaller inputs of labour and materials for a smaller return of bloom.

However, participation in separate currency spheres and a hypothesised reduction in demand for ironware seems inadequate as an explanation for the decline of BAMESSING production. At the very time that this process of devolution was going on in BAMESSING, production in BABUNGO appears to have been rising to hitherto unattained levels. Participation in separate currency spheres also seems inadequate to explain these apparently diametrically opposed trends in production rates. Boundaries between

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[73]. Warnier and Fowler, 1979.

currency spheres were not fixed but relatively fluid with those chiefdoms at the margins participating in both spheres as, indeed, appears to have been the case with BAMESSING at the end of the nineteenth century.

Furthermore, the hypothesis that changing currency usage should undermine the bases of production of the original currency might more profitably be argued the other way around. In other words changing values in the factors of production may have undermined the constraints that maintained the stability of the currency[74]. After all there seems little reason for brass to have replaced iron hoes unless the factors controlling the value of the latter became unstable. The early colonial history[75] of the Ibibio area, to the west of the Grassfields, illustrates the tenacity with which traditional currencies, in this case brass, were retained even in the face of the offer of a multi-purpose modern "money".

There are three areas in which the factors of production of the original iron currency may have altered. Firstly, the cessation, itself, of large scale production in BAMESSING for reasons outlined below. Secondly, an increasing orientation of BABUNGO production away from an earlier north-east (NSO) to south-east (META) axis of trade to a greater economic articulation with BAMUM. This shift in trade flow direction is supported by BABUNGO oral accounts of early 19th century trade which mention, for instance, the acquisition of the sasswood ordeal lodge from chiefdoms to the south east on the Western Bamenda plateau and also early trade disputes with NSO. Traditions from NSO accounting for the resurrection of its dynasty following the devastation of an early raid in the late 18th or early 19th century describe the "rescue" of a surviving

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[74]: For a discussion of this notion see Guyer, 1985 and 1986.

[75]: Unpublished memoranda by M.D.W. Jeffreys, S.D.O., and F.R. Kay, D.O., on the "Codification of Native Law and Custom (Land)", 1936.

"prince" by a trader involved in trading BABUNGO hoes for palm oil from northern sources[76]. Accounts of late 19th and early 20th century trade emphasise the importance of BAMUM as a source of palm oil, slaves and long distance trade goods. Genealogical evidence of the incorporation of slaves exhibits a similar pattern of changing orientation of trade. Finally, there is evidence[77] that Bamenda plateau iron workers were, for the 19th century, at least, employing a recycling technology to exploit slag produced by earlier ore smelters. Sources of such slag were necessarily finite and subject to increasing costs in transportation as their exploitation continued over time. In the colonial period Jeffreys[78] noted that round trip journeys of up to 80 miles were being made to collect this old slag.

While it is plausible that BABUNGO and BAMESSING were to some extent orientated in opposite directions in terms of market outlets this is unlikely to have been monopolistic in the sense that one chiefdom supplied outlets in one or more directions to the exclusion of the other. The two chiefdoms are contiguous and traders from the north, east and west, at least, could bypass either chiefdom to reach the markets of the other with an additional journey of an hour or two. The two interacted economically as well as together participating in the wider economy of the northern Ndop plain. It seems inconceivable that BABUNGO should have been shielded in some way from whatever factors influenced BAMESSING to reduce production and adopt a devolved form of smelting technology.

The physical evidence for the development of larger furnace structures outlined below suggests that, late in the eighteenth century or early in the 19th, both chiefdoms

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76. Jeffreys, unpublished "Tribal Notes".

77. Jeffreys, 1942; Ankermann, 1910; Warnier, 1983.

78. 1942.

were stimulated by changing conditions of trade to innovate their technologies. There is strong evidence for this innovation in BABUNGO and work done in BAMESSING by Warnier[79] points to similar developments. In the latter chiefdom there appear to have been both small and large shaft furnaces, with only slag from the smaller, more ancient sites being reused in the later period of open hearth smelting. Similarly, no one came to get the slag from the recent BABUNGO furnaces while slag deposits from the smaller, older "BAKWANG" furnaces located outside the area of settlement were heavily exploited by those using an open hearth to recycle slag from sites such as IBAL OKU, NTURR, and NKUM.

Hence, it seems plausible that the developed BABUNGO clump furnaces and the large BAMESSING furnaces were in direct competition with each other, and that the development of both was, perhaps, stimulated by some set of factors common to both. Leaving aside for the moment the question as to the relative efficiencies of the two technologies employed, there is one major event that occurred to BAMESSING that BABUNGO escaped: the dispersal of the former chiefdom c.1870, following a severe Fulani raid, with part taking refuge in KOM and part in META[80]. From each of these points of refuge it seems that BAMESSING took something of economic significance. From META vital current information concerning sources and conditions of palm oil supplies, that would, at the very least, have

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[79]. One BAMESSING informant stated that slag from the large heaps was not good for resmelting since not enough iron was left in it. The best slag was where it was found to be sparse and in small pieces. These were very ancient smelting sites and this slag, very black with few "thorns", from these sites was best of all. (Warnier, fieldnotes).

[80]. The chief of GUNDOM in META claimed that his ancestor TEGHANEBA came from TADKON to GUNDOM and displaced the MOESING,"now at BAMESSING near BAMBUI", who were settled there. Interestingly, he claimed to be the only chief in the BOME valley to have KWE'FO (E.M. Chilver, 1963 fieldnotes).

given BAMESSING traders an edge in their dealings with middlemen on the centre of the plateau. From KOM the knowledge of techniques of recycling old slag using an open hearth furnace.

If the impact of this enforced and prolonged dispersal together, perhaps, with new opportunities to profit from regional trade, led BAMESSING to abandon its former large scale mode of production it would now have the means to retain a foothold in the market using the open bowl technology plus the contacts and knowledge of western palm oil producers and markets to exploit its position between BABUNGO and the western oil belt. It seems plausible that reduced levels of iron production in BAMESSING represent in part, at least, a response to the potentially higher profits to be gained in trade from exploiting its marginal position vis a vis the cowry currency sphere and the chiefdoms of the Bamenda plateau. Once it had abandoned large scale production it would then have been in a position to play a highly profitable entrepreneurial role linking chiefdoms to the west with the BABUNGO centre of intensive iron production. There is strong evidence[81] that the chiefdoms of BABA, BANGOLAN and BAMBALANG, adjacent to BABUNGO, played just such a role vis à vis BAMUM and northern Bamileke chiefdoms. Relieved of these transportation costs, distanced from markets for its products by specialist entrepreneurial trading chiefdoms, and no longer in competition with BAMESSING as a major producer, BABUNGO production is likely to have risen to even higher levels than hitherto had been the case.

In support of this hypothesis it appears from informants statements that at the end of the 19th century an approximate 30% of BABUNGO palm oil requirements were met from western sources mostly via BAMESSING and BABANKI TUNGO traders in exchange for a hoe type specifically made for export to the west, related to the original "money"

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[81]. See later section on trade.

hoe. Further, BAMESSING was known by the epithet "people of calabashes" that referred to their great wealth. It is striking that BAMESSING should have been seen as wealthy relative to BABUNGO since BABUNGO, itself, was very well endowed with material wealth with many compound heads having their own treasure stores, separate buildings, called "ISHIA", set close to the sleeping room of the compound head, in which stores of cloth, beads, cowries, brass, gun powder and palm oil were kept. It is unclear to what extent similar "treasure stores" were common elsewhere in the Grassfields[82].

One factor that may have influenced the devolution of the BAMESSING iron industry centres on the loss of autonomy that seems to have followed its resettlement under conditions of subjugation set by BALI KUMBAT. This may throw some light on what appears to be a similar association between loss of autonomy and cessation of large scale iron production amongst groups incorporated into the larger polities of BAMUM, KOM and NSO, including OKU. In these areas it appears the persistence of large scale iron production was in some way incompatible with processes leading to the formation of the larger polity. This question will be pursued further when the beliefs associated with iron smelting are examined in a later section.

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[82]. More common were stores containing "juju" items such as gowns and other paraphernalia. E.M. Chilver (personal communication) mentions some small accumulations in BALI NYONGA in non-royal hands of relatively unimportant items such as Toby jugs, Bohemian glass and trade beads. Other cases of big men's stores distinct from royal stores include a large special cloth store belonging to NDZENDZEF of NSO and three spoken of in the KOM settlements of FOLI, ANYAJUA AND ABO. Possession of such a store of treasure was apparently a risky business. The story is told in MANKON of a wealthy trader whose riches attracted the envy of KWI'FO. He was accused of sorcery and hung so that they could despoil his stores. In such cases the property of the hanged man was shared out by the regulatory association.

Whatever factors had earlier influenced the decline of iron production in BAMESSING, at the end of the nineteenth century it was noted by its neighbours for its wealth derived from trade and also for the superior quality of its ironware.

Chronology

On the basis of conclusions drawn from the historical introductory section a chronology for the Ndop plain is proposed as follows :-

c.1780	Early raid on NSO and the Ndop plain. Dispersal of population from the KWANSO valley. NSO begins expansion. BABUNGO adopts innovation of developed clump furnace type.
c.1825	BALI CHAMBA raid into the Grassfields, through BAMUM, southern Ndop plain and Bamenda plateau. Defeat and break up of CHAMBA at Bafu Fundong.
c.1850	BALI KUMBAT established south of BAMESSING. Pattern of alternate alliances and raids on Ndop plain and neighbouring chiefdoms.
c.1870	Large scale Fulani raid on Ndop plain. War camp at BAGI DENSI forces BAMESSING, BAMALI, BAFANJI and BAMENYAM, already under pressure from BALI KUMBAT, to disperse and seek refuge with KOM and BAGHAM.

c.1880	BAMESSING and BAMALI resettle under submission to BALI KUMBAT. BAMESSING fails to resume large scale iron production, adopting instead an open bowl recycling technology. Increasing pressure on northern Ndop plain from KOM. BABUNGO near peak of production supplying BAMUM, NSO, and markets to south and west.
c.1888	Defeat of BAMUM by NSO relieves pressure in the Ndop plain. BAMBALANG, BABESSI, BAFANJI and BAMENYAM resettle original sites. Latter two chiefdoms resume large scale iron production.
1911[83]	BANGOLAN resettles on western bank of MONOUN.
c.1915--1930	Cheap European hoes, increasing supplies of scrap and redirection of labour puts Ndop iron plain industries out of operation. BABUNGO continues smithing using scrap iron only.

83. Witnessed by Vollbehr (1912).

NORTHERN NDOP PLAIN IRON INDUSTRIES

Introduction

Smelting debris is scattered over the Ndop plain and surrounding hills[1] but is found in much greater concentrations in the three chiefdoms of BABUNGO, BAMESSING and BAMENYAM.

Table 2

Ndop plain debris volumes and smelting sites

	Debris Volume (m^3)	Number of sites
BABUNGO	163,505	127
BAMESSING[2]	40,000	54
BAMENYAM	10,000	46

The density of tree cover and cultivation within BABUNGO hindered accurate mapping so each recorded site was linked either to the foundry owner or the nearest compound-head. Outside the contemporary settlement area sites were recorded on the I.G.N. 1/50,000 map series. Debris volumes were determined by equating the heap to either a conical or prismatic shape, taking the measurements of the abstract shape, and working out the volume of the heap in cubic metres[3]. The topography is gently undulating and the debris piled high in heaps of fairly uniform shape. Accordingly, the error factor should not be greater than +/- 20%. The ground was painstakingly covered and

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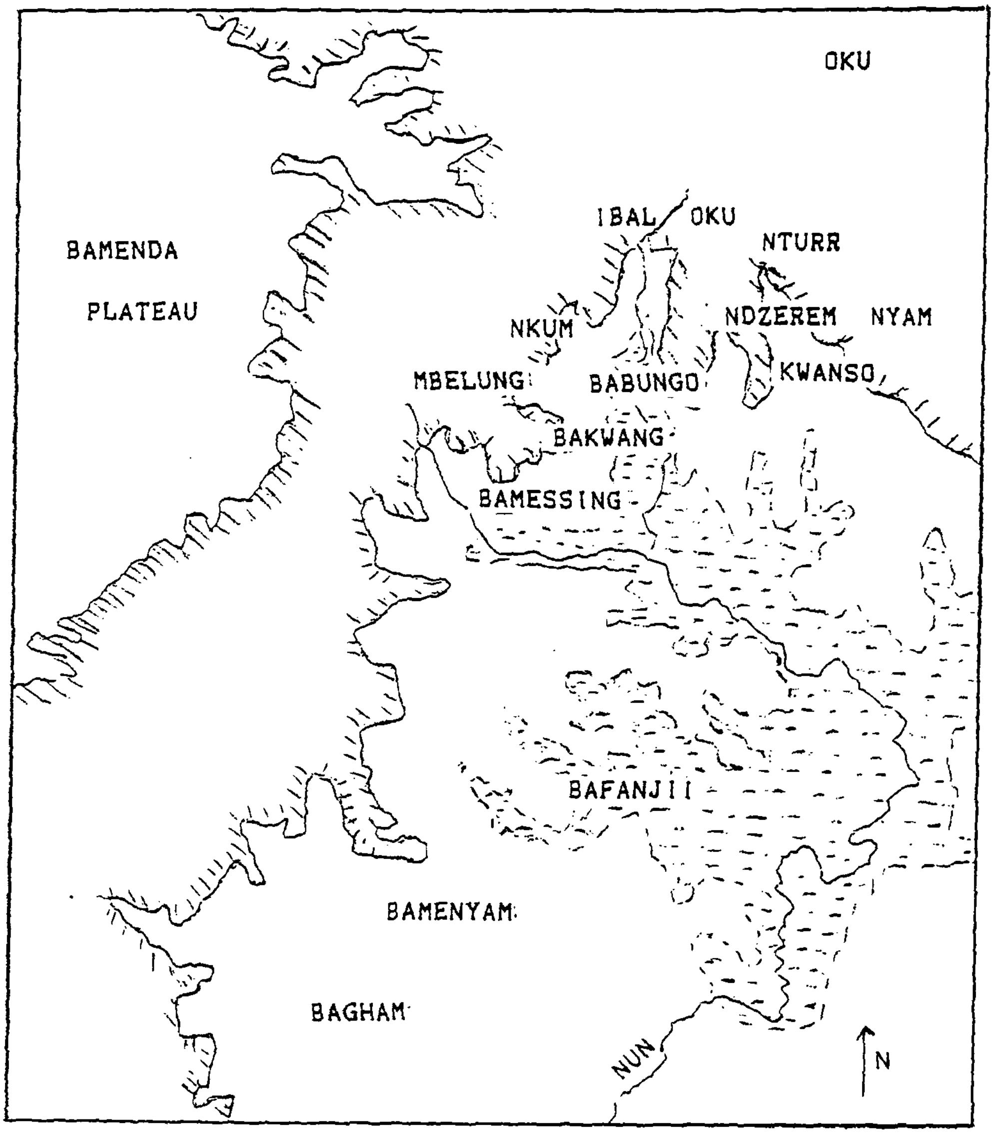
[1]. See map 6.

[2]. Data from BAMESSING and BAMENYAM gathered by J-P. Warnier.

[3]. For a cone the equation was $V= r^2*h/3$ and for a prism the equation $V=(1/2\ base*height)*length$. No account was taken of the possible effects of sedimentation. This is unlikely to be significant in the case of debris linked to recent furnaces but may mean that debris linked to the older furnace type has been underassessed.

NDOP PLAIN SMELTING SITES



LAND OVER 1400m

SWAMPS

Not to Scale

NDZEREM NYAM Smelting centre

rechecked and it seems unlikely that many heaps escaped attention, especially given that several were taller than local dwellings[4]. No attempt was made to accurately survey sites at IBAL OKU and NTURR that had been more or less completely levelled by OKU smelters recycling the slag.

Clearly smelting debris may have accumulated over long periods of time, possibly several centuries. Gross volumes of debris, therefore, tell us nothing about the actual output of an industry for a given period. However, historical sources for the periodisation of technological developments indicated by change in furnace structure, oral traditions relating to these innovations and the history of settlement of associated descent groups, genealogical evidence suggesting the time depth of the establishment of new furnace structures, the configuration of slag heaps and slag forms and compositional analysis permit approximate estimates[5] to be made.

In the section dealing with the historical context of iron production evidence was put forward to support the notion that the first great raid on the Ndop plain that dispersed groups from the KWANSO valley and led to their incorporation within BABUNGO occurred c.1780. One such immigrant group is accredited with the introduction of the innovatory furnace structure upon which the enormous subsequent levels of BABUNGO iron production was based. This innovation in furnace structure is represented in oral tradition as a technological revolution.

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[4]. See photograph 4.

[5]. A seemingly more tightly chronologically controlled survey of smelting remains has been done by de Barros (1983, 1985, 1986) for the Bassar of Togo with the aid of C14 and thermoluminescence dating. However, the main estimated period of use of the developed BABUNGO clump furnace, c.1780-1930, is actually a shorter period than that allowed for as error factor for some of the de Barros C14 dates.

FIG. 4 **BABUNGO SLAG HEAP**

Height 6.32m. volume 1210m^3 of debris.

One version suggests the immigrants brought an established furnace type and associated technology and that when BABUNGO smelters saw that it produced twice as much bloom as their own furnaces they rapidly adopted it. A variant tradition retained solely within the descent group attributed with the introduction of the new furnace type states that the paternal ancestor, YIGHAU, who settled in BABUNGO had an "idea" for a new furnace type that he successfully put across in false terms as an established technology. His "idea" may represent one final, and relatively sudden, step in a process that had been going on over a considerable period of time in the wider region.

Physical evidence supports these traditions to a limited extent. Smelting debris in the KWANSO area[6] appears to represent a tradition of large scale production but the deposits have been largely scattered in the course of their exploitation by OKU smelters. The first settlement site of the immigrant group within BABUNGO is still visible although the furnace has recently been obliterated and the associated slag heap removed for use on the roads.

However, it seems unlikely, given the high costs of constructing a new furnace and foundry, that BABUNGO smelters should have speedily abandoned their old furnaces and incurred the heavy costs of building new ones. Even if the new furnaces were twice as productive, the transition period may have extended over a decade or more. Further, a sudden technological transformation from one furnace type to another seems implausible in the light of the physical evidence of furnace remains found in and around BABUNGO. It seems more likely that the emergence of the recent BABUNGO clump furnace represented the culmination of a developmental trend that may be discernible in the remains of different furnaces structures in the wider area. For reasons outlined above this may have initially occurred

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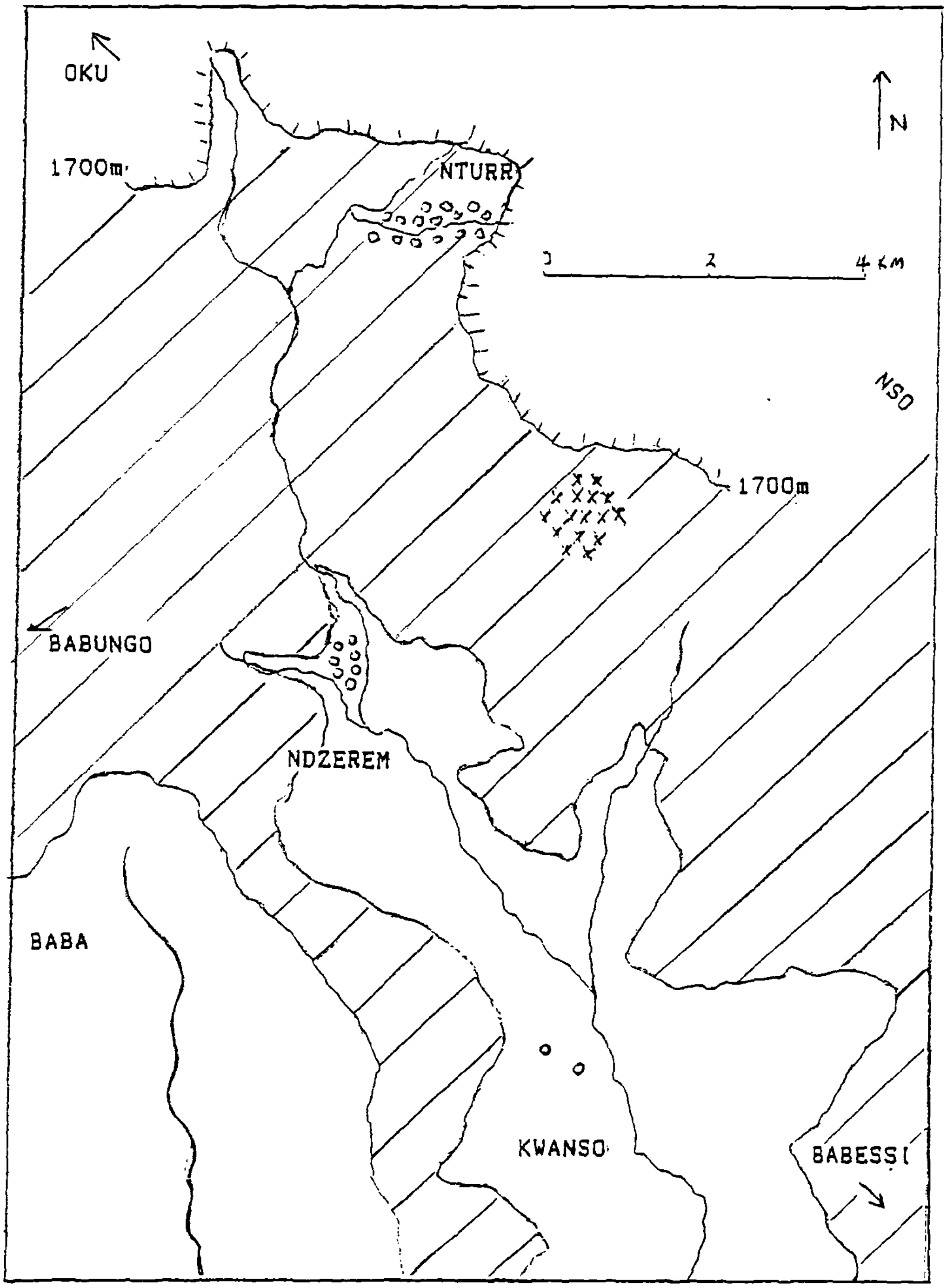
[6]. See map 7.

MBELE-KWANSO, NDZEREM-NYAM and NTURR



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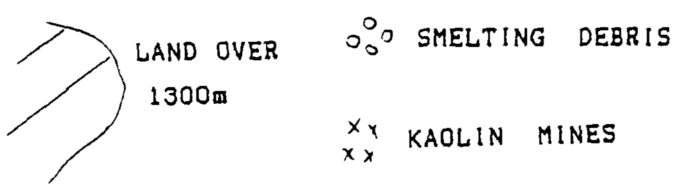

c.1780 with the following 1-2 decades witnessing the progressive emergence of the developed furnace structure as the dominant form.

The clump furnace structures located on the southern flanks of the OKU massif and Ndop plain appear to represent variations on a common theme[7]. They all enclose a cylindrical cavity where reduction of ores took place. The cavity is partly enclosed within a bank of pounded clay and formed by blocks of this clay moulded around a central bundle of roofing grass that was removed as the clay dried. In all cases a forced draught is provided by means of two tuyères[8] passing from a raised position at the rear of the furnace into the centre of the furnace, which had an arched opening at the base and front through which the cake of slag and bloom was removed at the end of the smelt. This opening also supported the weight of the furnace structure above it.

The variations that occur centre on four features of the furnace and are related in developmental terms in that changes in one tended to lead to concomitant changes in the other features. Firstly, and most importantly, the internal shape and capacity of the cavity enclosed within the clump. Secondly, the angle at which the tuyères enter the cavity and, also, if there were two then their angle

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[7]. See Diagram 1.

[8]. There is a parallel tradition to the two outlined above which suggests the older furnace type used a single tuyère and produced a single bloom and that the crucial element of the innovation was to employ two tuyères and so produce two blooms. However, no single instance of an older type furnace with a single tuyère channel was found. This suggests a conflation of two separate technological innovations into a single narrative "event". The suggestion of use of a single tuyère may indicate early affinities with such structures that were in use until quite recently, eg. among the Sukur and Mafa. It also suggests that technical innovation to increase capacity in response to external demand is a longstanding feature of these industries.

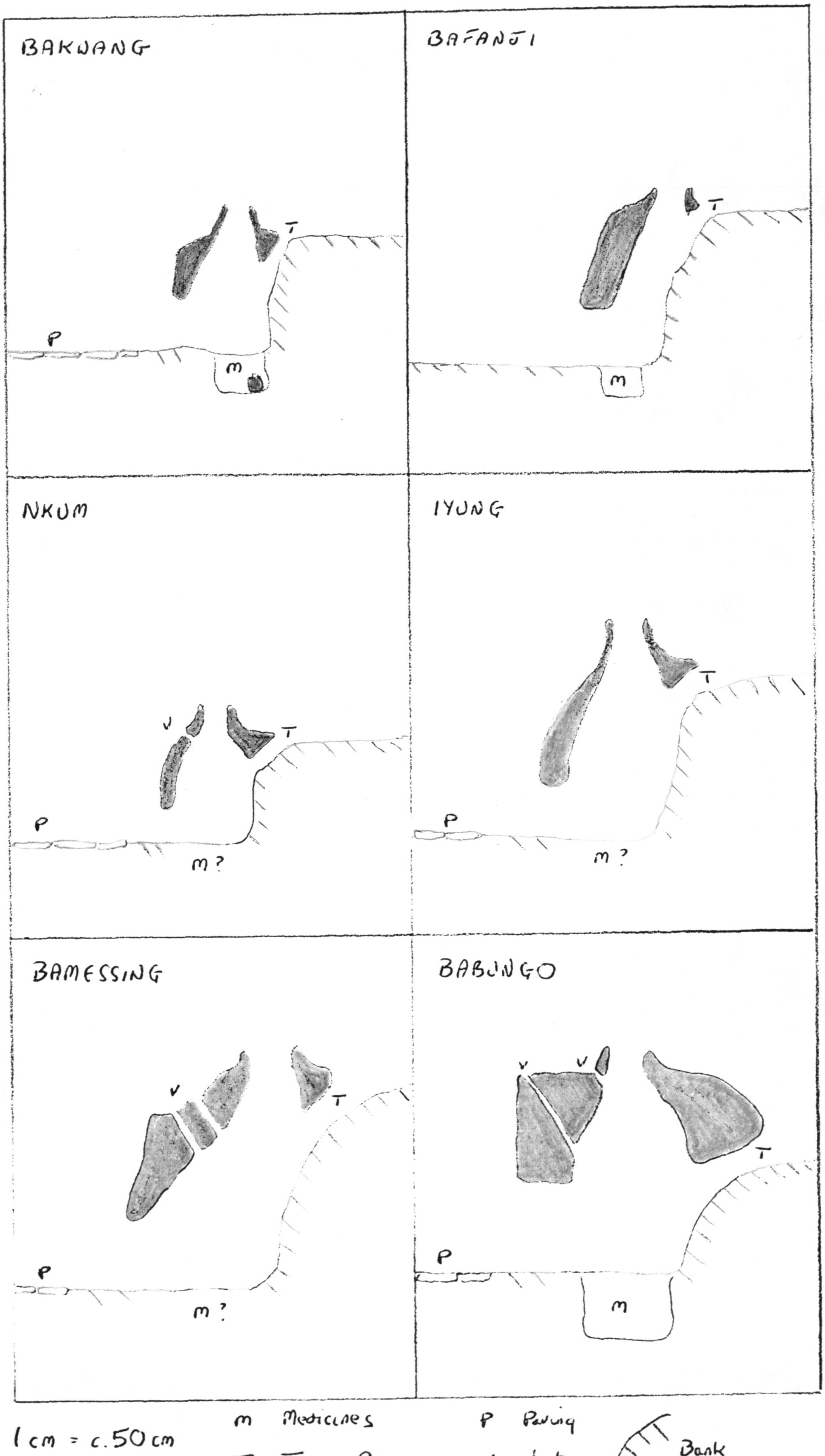
vis à vis each other. Thirdly, the size of the base opening and thickness of the front section of the furnace. Fourthly, the form of the superstructure and chimney of the furnace.

It was not possible to excavate an old furnace type located within the present settlement area of BABUNGO. These furnaces are feared as a source of potential misfortune and must be offered annual libations of oil, wine and camwood. Hence, excavation would have presented serious difficulties. It was necessary to locate sites outside this perimeter, which could be linked to the old furnace type found within the settlement area through oral traditions and the physical evidence of visible furnace remains and the form of associated debris. Four sites were located where the surface remains of the furnaces and also the forms of smelting debris suggested continuities with sites located within the area of BABUNGO settlement.

FIG. 5 **OLD BABUNGO FURNACE**

Remains protected by ritual hut.

Diagram 1 NDOP PLAIN FURNACE STRUCTURES



BAKWANG

This site, located in the foothills above the Ndop plain at 1400m altitude, lies approximately one hours walking distance from the south west edge of the main area of 19th century BABUNGO settlement. It is associated in the oral traditions of BABUNGO and BAMUNKA with a population, known respectively as the BAKWANG or BUNKWANG[9], disrupted in the second half of the nineteenth century, conceivably under similar circumstances to the dispersal of BAMESSING c.1870 in the face of a Fulani war camp established on its borders. As a result elements of the chiefdom are said to have finally settled in the three surrounding chiefdoms of BABUNGO, BAMESSING, and BAMUNKA.

Two furnaces were found in association with five groups of debris heaps with a total volume of c.1000m^3. One site was cleared[10] and the furnace structure and foundry layout investigated. The composition of the associated heap of debris was examined to determine the relative volumes of slag, ash, organic and other debris. Material samples, such as slag, tuyères, furnace sections, sherds, charcoal, etc., were taken for laboratory analysis and dating[11].

No evidence of smithing, such as stone anvils or hammers, was found. While this does not prove that no smithing took place here it is noteworthy that BAKWANG is situated immediately to the north of the area known as

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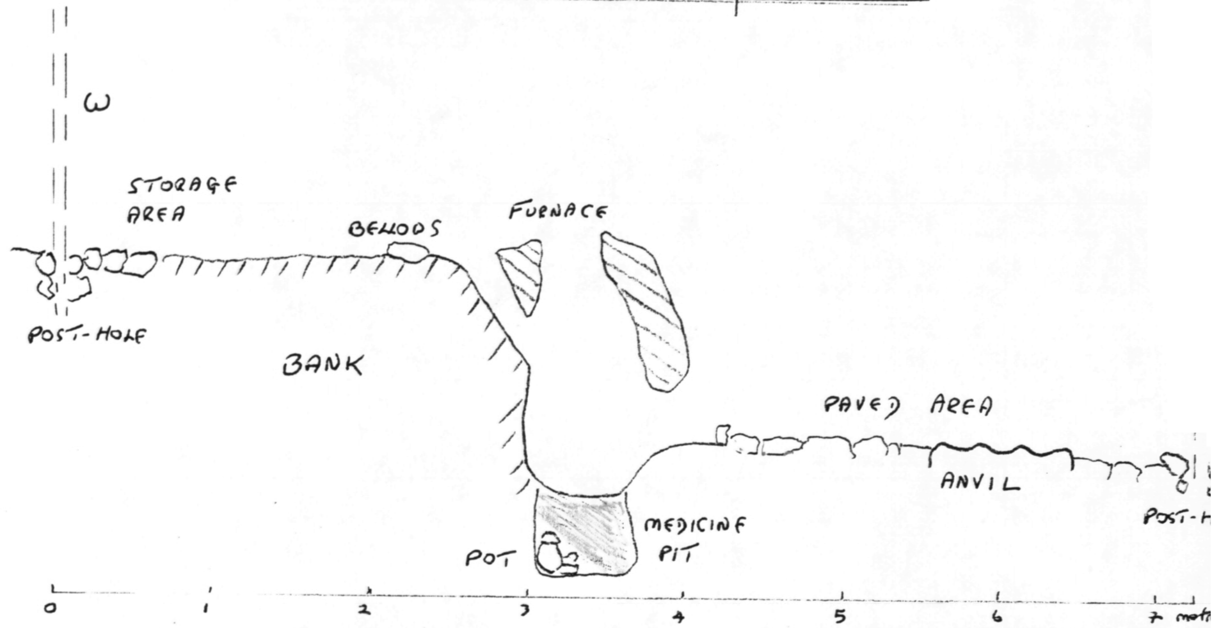
9. BAMUNKA informants claimed to have acquired its regulatory association from this group in the reign of an early FON. (Kaberry fieldnotes, 1963).

10. The site was not excavated, the foundry floor was cleared and debris removed from the interior of the furnace. Only the pit beneath the hearth was dug to locate the pot of medicines buried there. See diagram 1 and photograph 6.

11. It is unfortunate that this material has been destroyed in circumstances beyond the control of the researcher.

Diagram 2

Cross-section BAKWANG Foundry and Furnace



BAKWANG Foundry Layout

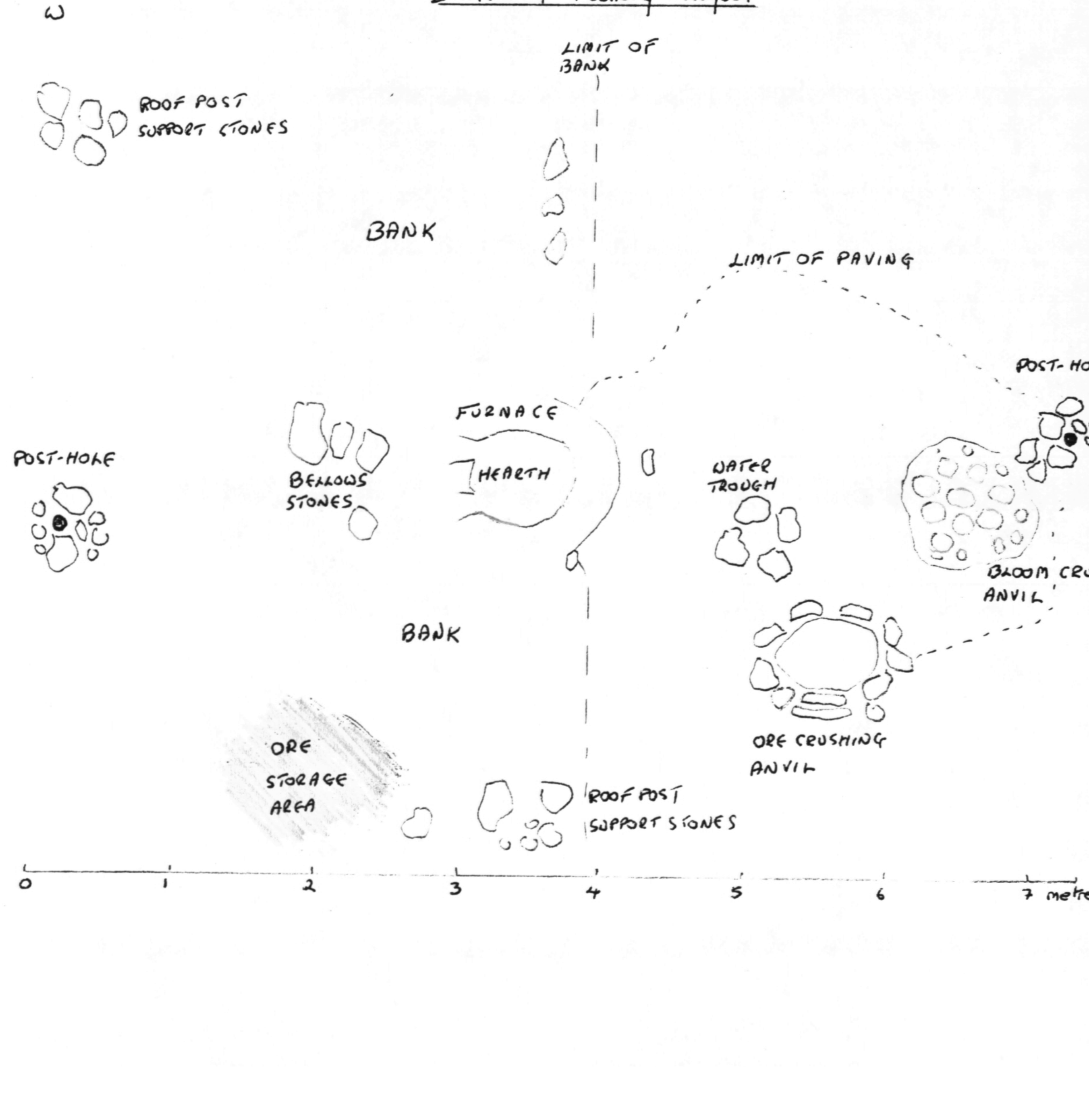


FIG. 6 BAKWANG FOUNDRY FLOOR AND FURNACE

LUNG, which is claimed to have been the original settlement site of the smiths of BABUNGO. It is possible that bloom produced in BAKWANG was forged in LUNG. However, genealogical evidence associated with the incorporation of the smiths suggests a much earlier date than that for the dispersal of the BAKWANG population.

The main slag heaps found in association with the cleared foundry were located 30-40m away but two heaps of lighter debris[12] were much closer. The total volume of debris was 300m^3. Soil covering the foundry floor was passed through a fine 5/5mm mesh and found to be free of debris apart from some light hammer stones and a few sherds. This suggests that, once abandoned, the site was not reoccupied at any point up to the present day. It also is likely that, as in BABUNGO, the paved floor of the foundry was swept clean after every smelt in order to maximise the recovery of bloom that had been extracted by hammering from enclosure in blocks of slag.

Examination of the foundry floor revealed two post holes on an east-west axis c.7m apart, indicating the foundry was only half the length of a recent BABUNGO foundry which is commensurate with the smaller capacity of the BAKWANG furnace. The posts were lodged in pits c.70cm in diameter plugged with stones, slag, tuyère pieces, etc. The position of groups of stones that may have supported the ends of the roof structure indicate that the foundry was c.5.2m in width, which is roughly that of a recent BABUNGO foundry. A passageway through the heap of light debris surrounding the foundry lined up with the axis of the post holes suggesting an entrance facing east.

The foundry was divided into an upper and lower section by a bank of clay c.1.2m high into which the furnace was embedded. As in BABUNGO the upper section had a beaten earth floor while the lower section was paved with

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[12]. These small, light heaps probably represent the detritus left after crushing the bloom to remove inclusions of slag and charcoal.

stones. In BAKWANG virtually every one of these stone slabs was pocked with depressions indicating that an intensive effort was made to mechanically extract crystals of iron occluded in slag.

Three main structures were visible in the paved lower section of the foundry[13]. A flat stone anvil surrounded by raised stones that our BABUNGO assistants were able to demonstrate as a place for crushing ore using a stone hammer. It may also have served as a spot for pounding clay for the interior lining of the furnace hearth. Secondly, a very large stone anvil[14], pocked with numerous depressions, that was used for hammering out pieces of bloom enclosed in lumps of slag. Thirdly, a trough in the foundry floor where clay was mixed with water for fixing in the tuyères at the rear of the furnace, and for blocking up the furnace mouth during the course of the smelt with wet clay and old lengths of broken tuyères.

The superstructure, chimney and front of the furnace had been broken away and the pieces were missing or too eroded to be reconstructed. The depth of the furnace, c.1.5m from the floor of the upper section to the base of the hearth, and the narrow chimney, perhaps c. 40cm in diameter, suggests that there was an opening at the base and front of the furnace. The capacity of the furnace would have been c. $0.47m^3$.

At the base of the furnace the walls appeared to be unbaked. In BABUNGO the debris surrounding the block of bloom and slag at the base had to be dug away to allow a rope to be placed around it to drag it out. This often caused considerable damage to the lining in this area which would then have to be replaced. Conceivably this BAKWANG furnace was similarly relined and then the furnace not used again. However, it is also possible that this part of the furnace did not attain such high temperatures as to bake

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[13]. See photograph 6 .

[14]. See photograph 7 .

the walls. It was the practice in using these clump furnaces to lay an initial bed of dried elephant grass stalks, or similar materials, on the base of the furnace. BABUNGO informants indicated that at the start of a smelt this material was fired to heat the furnace and light the charge to be loaded through the chimney. However, in some African smelting technologies[15] this bed of dried stalks was not directly fired but only charred by the heat of the furnace and so provided support for the charge of ore and fuel that rested on this bed in the hottest and most reducing area of the furnace. Towards the end of the smelt this bed would be disturbed and the cake of slag and bloom would come to rest at the base of the furnace whose walls at this point would remain unbaked.

At the rear of the furnace at the level of the upper foundry floor two passageways emerge to accommodate the two tuyères used to convey the forced draught from two twin bellows. The maximum thickness of baked clay wall occurs at approximately 60cm above the base of the hearth and this is likely to have been the point at which the tips of the tuyères were located. In BABUNGO up to half the original length of the tuyère was slagged off in the course of a smelt. If this occurred in BAKWANG the original length of the tuyère was c.1.80m. Broken lengths of used tuyères recovered from the site had an average oval section of 8 by 6cm, and the thickness of the walls was up to 2cm. The very steep angle at which the body of the tuyère passed through heated ore and fuel means that the centre of the hearth will have been supplied with pre-heated air.

Immediately in front of the BAKWANG furnace was located a small rectangular stone c.20cm long protruding above floor level. This may have served as a fulcrum for a pole used to disengage the block of cooled slag and bloom from the furnace base, and its position makes it unlikely that slag would have been tapped. If this was the case

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[15]. Tylecote, 1975.

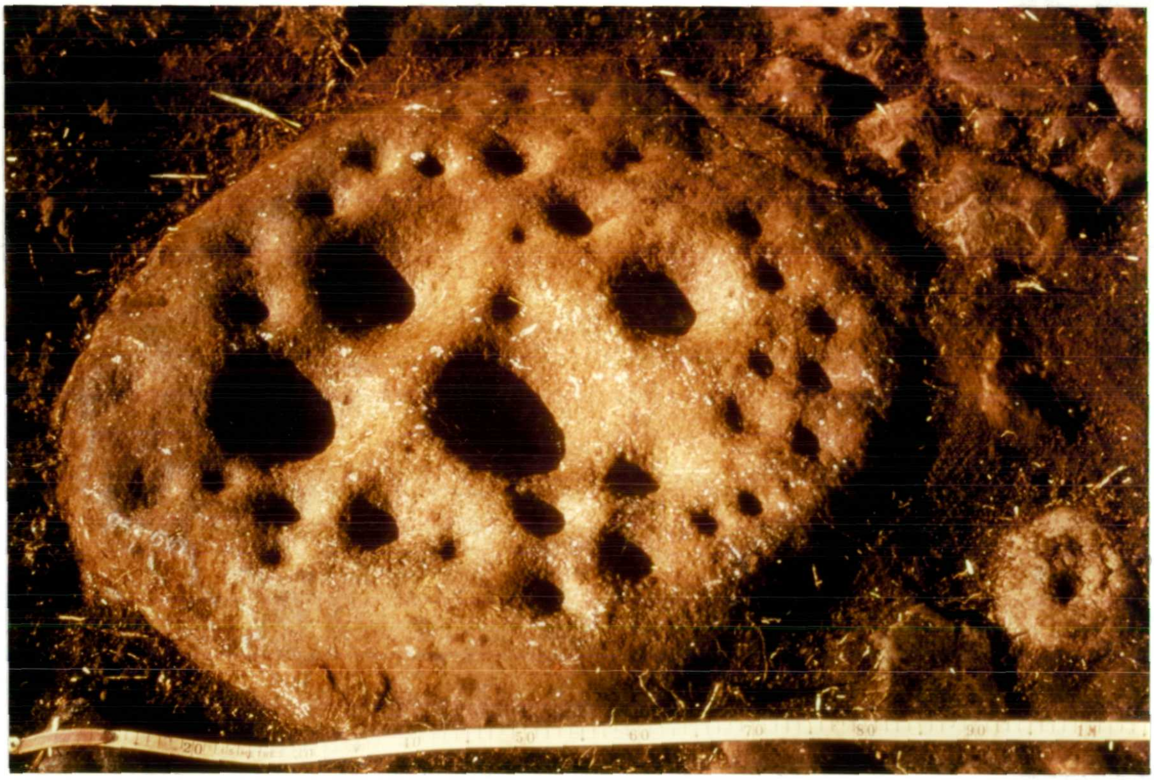

FIG. 7 BAKWANG BLOOM CRUSHING ANVIL

then the block of slag and bloom had to be kept small enough to be extracted whole through the mouth of the furnace. The furnace capacity was estimated at $0.47m^3$ and the block of slag and bloom is not likely to have been not more than one fifth of the total capacity of the furnace. Accordingly, a maximum volume of $c.0.1m^3$ for the block of slag and bloom does not seem unreasonable.

One of the main heaps of debris was removed entirely and found to represent 60% slag, 5% tuyère fragments, the remaining portion made up from ash and other organic debris. Accordingly, the $300m^3$ of debris found in association with this particular furnace contained $180m^3$ of slag. This implies a total of 1800 individual smelts and indicates the foundry is likely to have been in use over a considerable period of time, perhaps as long as 100 years with an average of approximately 20 smelts per annum.

The base of the hearth was not lined with clay but was, in fact, a pit filled with charcoal, slag and tuyère debris, and large lumps of unbaked clay. At the base of this pit, c.1m below the level of the base of the furnace, was found a pot supported by three lengths of broken tuyère. The pot[16] was found to contain decomposed organic matter, fragments of bloom, and pieces of iron ore. This suggests strong parallels with the two pots of medicines buried in a shaft beneath the more recent developed BABUNGO clump furnace. It also seems likely that, as in BABUNGO, the pit was dug after the furnace had been constructed since the unbaked blocks of clay found in the pit would represent what was left over after construction of the furnace.

The inclusion of smelting debris, both in the post holes for the main support beams and also the pit beneath

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[16]. This pot was decorated with twisted raffia fibre to give a form of roulette impression. The design and shape of the pot alone, not including the "lid", strongly resembles a traditional BABUNGO "NTUU-NDAI", or basic cooking pot. See photograph 8.

FIG. 8 BAKWANG MEDICINE POT IN SITU

the furnace hearth, indicates that this was not the first foundry to be built in the area. Either the furnace and foundry were rebuilt using old materials or the whole thing was built from scratch using such materials from other on-going foundries close by. The latter case would reflect the situation in BABUNGO where all owners of foundries came together and contributed medicines and other materials in order to validate the establishment of a new foundry and the "TUNAA[17]" status of its new owner.

[17]. "TUNAA", lit. father of the house, may refer either to a master foundryman or a master smith. When referring to a smelter it is more properly rendered as TUNAA-DENG, ie. father of the house of the heap, which refers to the heap of smelting debris found close by each foundry. A master smith is called TUNAA-EYOE, ie. father of the house of smithing. In both cases one becomes a TUNAA either by establishing a new foundry or smithy or by patrilineal succession to a compound or lineage branch headship in which this title and ownership of the workshop is vested. Within BABUNGO both the term TUNAA and a variant form TUNDAA are in use.

IYUNG

This site comprised a cluster of three furnaces located only a very short distance beyond the defensive trench. Debris that had accumulated inside one furnace was cleared away and the structure recorded[18]. A small area immediately in front of the furnace was cleared and the stone paving of the foundry floor examined. Stone hammers and grinding tools and also fragments of tuyères were photographed and documented. The volume of the heaps of debris associated with each of the three furnaces was determined. The cavity of the furnace that had been cleaned out was backfilled with debris of slag, stones and baked clay and the whole furnace mounded over with the same material in order to preserve it from damage by grazing Fulani cattle. On the surface close to one of the furnaces a number of relatively undamaged sections of the furnace chimney and superstructure were discovered permitting an attempt to reconstruct these features.

The IYUNG furnace was identical to the "BAKWANG" furnace albeit slightly larger. A small area of the lower foundry floor was cleared to reveal paving stones similar to those found at BAKWANG. A much larger quantity of slag and stone hammers emerged from the soil covering the foundry floor. Three different types of stone tools were found. Eight rounded stone hammers pitted with one to seven depressions on all sides were very similar to ones seen at BAKWANG. These ranged from 9 by 9cm to 7 by 6cm in size. In a recent BABUNGO foundry they would have been used by young people assisting in the foundry to extract bloom enclosed in lumps of slag close to the main blocks of bloom. Two types of larger rectangular stone tools were also found. The first type appeared to be a basalt stone with one long smooth flat surface and the others rounded. Six of these were found with an average length of 20cm and cross section of 10 by 10cm. The second type was also

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[18]. See photographs 9+10.

FIG. 9 **IYUNG FURNACE**

Front view

FIG. 10 IYUNG FURNACE AND FOUNDRY FLOOR

rectangular but slightly smaller and appeared to be a gneiss or granitic rock. Four of these were found with an average length of 14cm and cross section of 7 by 4cm. Both types of rectangular tools were probably used for grinding. Ores were almost certainly roasted and then broken up before being smelted and it is also possible that bloom was ground and sieved as was the practice in BAFANJI.

The sections of chimney fitted together to form two virtually complete chimneys[19]. However, while this allows reconstruction of the chimney of a BAKWANG type furnace, it posed a problem in so far as the two chimneys were of sufficiently differing sizes that they are unlikely to have been intended for use in the same furnace. Neither chimney appeared to have been used and it is possible that one was intended for use in one of the two nearby foundries and both had been stored in the loft of this foundry for drying shortly after being formed.

At the base of each chimney was a circular groove around its circumference. At both IYUNG and BAKWANG fragments of baked clay were found with an arc of ridge that roughly matched the groove[20] of the chimneys and possibly they were further cemented with a plastering of clay. As the charge of ore and fuel were most probably fed through the chimney it is likely that these were frequently damaged as the foundry worker attempted to pour in the materials without setting fire to himself or his wooden scoop. Although basically similar in form and size to the chimneys used on the recent BABUNGO clump furnace those found at IYUNG were much finer in form and finish.

The reconstructed chimneys put together with parts of the furnace superstructure found next to one of the other IYUNG furnaces enables a reconstruction of the top part of

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[19]. Photograph 11 shows the larger of these two chimneys.

[20]. See photograph 13.

FIG. 11 **RECONSTRUCTED IYUNG FURNACE CHIMNEY**
Larger of the two recovered.

FIG. 12 **RECONSTRUCTED IYUNG FURNACE CHIMNEY**
Smaller of the two recovered.

FIG. 13 BAKWANG FURNACE CHIMNEY BASE

Note ring and groove.

the BAKWANG furnace type. This permits a clearer comparison with the more recent BABUNGO clump furnace.

A large number of lengths of used tuyères were recovered from the foundry floor averaging from 20 to 25cm in length with apertures from 3.5 to 4.5cm. Interestingly there were 23 body lengths and 23 tip ends partly fused in the course of a smelt. It proved possible to fit some of these sections together. Presumably these had been gathered for use in blocking up the mouth of the furnace during a smelt. Only one bellows mouth section of a tuyère was found and this had an aperture of 9cm. Typically in the BABUNGO area heaps of smelting debris are picked over by smiths looking for these tuyère sections to use in the smithy. If the body and tip end sections of the tuyères found are put together with, perhaps, one half length again to represent the missing bellows mouth section then the actual length of these used tuyères would have been c. 75cms. The original tuyère would then have been c.1.60 ms in length, assuming that up to half was lost in the course of a smelt. This is close to the estimated length of tuyère used at the BAKWANG site.

A total of 2086 ms^3 were found in associatioı with the three foundry sites at IYUNG.

Table 3

IYUNG Debris Volumes

IYUNG Site	Debris Volume
A	$70m^3$
B	$338m^3$
C	$1678m^3$

It was sıte "A" that was investigated and it is of great interest that the site with least debris should have had such a large number of stone hammers and a collection of old tuyères for use in one foundry. Thıs suggests a large labour group working in the foundry immediately prior to its abandonment, which, from the evidence of the large volume of debris on the foundry floor together with the broken unused chimney sections, may have been sudden and violent.

The defensive trench built early in the nineteenth century lies just a short distance to the east of the three IYUNG sites, with a spur that runs off the main trench an equal distance to the south of IYUNG. This suggests strongly that it was originally intended to include these foundries and associated settlement within the defensive perimeter. Whether the settlement was destroyed before the trench could be completed or other considerations led to it not being enclosed is uncertain.

If the IYUNG settlement was not destroyed by the first great raid on the plain c.1780 or by the later depredations of BALI KUMBAT and it persisted using a "BAKWANG" type furnace into the third quarter of the 19th century it would certainly have fallen prey to the raid by Fulani slavers that occurred c.1870. This had its most devastating effect on the chiefdom of BABA located, according to some BABA informants, at the time in an area known as BA'NGO a few miles to the south of IYUNG. The FON of BABA is said to have committed suicide in the face of the loss of his family and a large part of his chiefdom. It seems likely that the raiding party would have swept north between the swamps to the east and the foothills of the mountains to the west to attack BABUNGO from the south. IYUNG would have borne the brunt of an attack from this direction and may have been destroyed at this time.

MBELUNG and NKUM

Two other sites located in the foothills above BABUNG showed evidence of furnace types similar to those at IYUNG and BAKWANG.

The MBELUNG site was only observed visually. It is located at 1500m altitude, on a few acres of flat land on the otherwise very rugged scarp of the northern hillside overlooking the valley, in which IYUNG is situated. Approximately 20m from a permanent stream it is surrounded by the same trees found at BAKWANG which are commonly used for charcoal making by local smiths. The actual smelting site is linked in BABUNGO oral traditions with a group in transit[21] through the Ndop plain that later established the dynasty of the nearby chiefdom of BAMBILI.

The surface remains of the furnace clearly indicated a BAKWANG type furnace embedded in a bank of clay but much smaller in size than either the IYUNG or BAKWANG examples. Two circular blocks of slag. ie. "furnace bottoms", each 40-45cm in diameter and 12cm deep were found with a depression in the centre where a block of bloom would have been removed. This provides an indication of the base section area of the furnace and also the size of the mouth through which the whole block would have been extracted. Another block of slag with tuyère lengths, with walls 2cm thick and an aperture of 6cm, embedded vertically to the plane of the flow structure of the slag clearly indicated that the furnace mouth was blocked with old tuyère pieces as was the case at IYUNG and also in recent BABUNGO furnaces. The volume of smelting debris found in association with the single MBELUNG furnace was 274m^3, roughly similar to the quantity found linked to the excavated BAKWANG foundry site.

NKUM is located at of 1700m altitude at the top of the scarp overlooking the Ndop plain. It is claimed by BABUNGO

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21. BAFRENG traditions link the BAMBILI with the TSHINGONG, Kaberry 1963 fieldnotes. The latter were resident on the northern edge of BABUNGO at contact.

as an area of settlement whose population was assimilated into the centralised chiefdom in the nineteenth century. It was resettled in the 1970s by groups from BABUNGO in an attempt to buffer the southward spread of equally recent KOM settlement over the high lava plateau. Evidence of earlier settlement exists at this site in the form of potsherds, tuyère fragments, small polished grinding stones, ash pits, stone hearths and lumps of baked clay. Localised patches of blackened soil may indicate debris from iron working. Similar evidence and actual heaps of smelting debris and furnace remains were said to exist in the nearby KOM settlement of AFUA. It proved impossible to investigate these since the existence of the physical remains of iron working associated with BABUNGO techniques would have invalidated the settlement rights claimed by KOM settlers.

One smelting site at NKUM was located at the southern edge of the recent BABUNGO settlement a short distance from the old trade path between BABUNGO and KOM. It stands on a flat parcel of land that was until recently the spot where local Fulani cattle were counted for taxation. The nearest permanent source of water was over 1000m away but if, as was commonly the practice for recent smelters, most production took place in the wet season, this would not have imposed significant extra labour costs. A few hundred metres to the east of the site a series of 14 pits were located. Informants from BABUNGO indicated that the shallow pits were dug for iron ore and the very deep pits surrounding a rocky outcrop were similar to kaolinite mines found elsewhere in the foothills overlooking the Ndop plain.

The NKUM site was treated similarly to that of IYUNG. The furnace[22], in a similar state of preservation, was cleared of debris and a small portion of the lower foundry floor exposed for examination. The furnace was then

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[22]. See photograph 14.

FIG. 14 NKUM FURNACE

Top view.

backfilled to preserve it against further damage from grazing cattle. It was virtually identical to the BAKWANG furnace but with approximately half the internal capacity and similar to the IYUNG site in so far as there was no "fulcrum" stone immediately in front of the furnace mouth, as at BAKWANG, but rather two such stones placed on each side at the base of the furnace mouth. Also, as at IYUNG, there was an area clear of stone paving immediately in front of the furnace mouth that would have facilitated the partial tapping of slag toward the end of a smelt.

The lower part of the furnace mouth remained intact[23] with the lower 20cm of the arched opening preserved on both sides. The outer surface of the baked clay walls of the furnace mouth were uniformly 5cm in width and had smoothed and rounded edges. Extrapolating from the preserved feature upwards to form an arched opening suggests this would have been c.40cm in height and 65cm wide at the preserved base of the opening. An aperture of this size would have easily accommodated the block of slag found at MBELUNG whose dimensions were c.12cm deep and 40-45cm in diameter.

Very little debris was found in the NKUM furnace and on the foundry floor only a single section of a used tuyere with an aperture of 3.5cm. There was no discernible mound of smelting debris found in association with this site, merely a scatter of slag some $50m^2$. While cattle will happily trample over and destroy the upper parts of furnace structures, and crush fragments of tuyeres underfoot, they would not easily scatter a mound of heavy and abrasive blocks of slag. The wide scatter of slag and other debris at NKUM suggests not a small level of production but rather

[23]. Unlike free standing cylindrical furnaces clump furnaces do not seem susceptible to relative dating according to states of preservation. The speed with which the hollow in which the foundry is set is infilled and, hence, the relative degree of preservation of the furnace seems likely to be determined by particular local circumstances and not universal trends.

the exploitation of this site by smelters using an open bowl furnace to recycle slag.

A Model of Development for the BABUNGO Furnace

It can argued that since it was not possible to excavate an old furnace site within the present BABUNGO settlement area these cannot be linked to those sites located outside this perimeter. However, physical evidence from the sites at BAKWANG, IYUNG, NKUM and MBELUNG together with observations of old foundries in BABUNGO suggest strong continuities in three main areas.

Firstly, the observable surface remains of old BABUNGO furnaces are typically a horseshoe shaped ridge of baked clay rising a few centimetres above ground level. The open section showing where the front part of the furnace had collapsed. At the rear of the ridge are two depressions where channels for the tuyères would have emerged from the body of the furnace. These features were perfectly reproduced in the IYUNG surface remains of the furnace investigated.

Secondly, examination of smelting debris forms strongly suggests continuities. The mean dimensions of the oval sections and walls of tuyères recovered at BAKWANG, IYUNG, NKUM and MBELUNG relate very closely to those found within BABUNGO on heaps associated with the old furnace types. Also circular blocks of slag, up to 50cm in diameter, similar to that found at MBELUNG, although not common, were located at a number of debris heaps associated with old BABUNGO furnaces. These blocks are "furnace bottoms" indicating the shape and dimensions of the hearth. The means of blocking the furnace mouth is also shown since all these blocks had either lengths of tuyere bodies remaining embedded in one side of the block perpendicular to the plane of the flow of the slag, or had perfectly shaped columniform gaps where the tuyère pieces had eroded away.

Thirdly, strong continuities were established between the structures of the stone paved flooring of the BAKWANG, IYUNG and NKUM foundries, and recent BABUNGO foundries. On the basis of their knowledge of the layout and use of the recent BABUNGO foundries local informants demonstrated clearly the functions of the various structures exposed at the BAKWANG site. The layout of the foundry floor in the vicinity of the furnace was virtually identical. In the single instance[24] that a pocked "moon" stone was found in association with an old BABUNGO furnace type it was situated in the same position relative to the furnace and axis of the foundry, as recorded at the BAKWANG site, to within 5cm. While overall the recent BABUNGO foundries were much larger all the features present in the BAKWANG foundry floor layout were repeated in the recent BABUNGO foundries. It seems highly unlikely that established continuity between the BAKWANG foundry layout and recent BABUNGO foundries should not encompass the old BABUNGO foundry.

On the basis of the physical evidence of furnace structures described above the following developmental model is proposed for the emergence of the recent developed BABUNGO clump furnace.

The hearth cavity of the NKUM furnace represents an oval with the long axis running from tuyère channels to furnace mouth[25]. The steep angle of entry of the tuyère channels strongly suggests that the tuyère tips stood very close to each other in the centre of the hearth. The BAKWANG and IYUNG furnaces reproduce the form of the NKUM furnace but double the furnace capacity. In all three foundries the mutual angle of the tuyères leading them to meet in the centre of the hearth is likely to have produced a single central bloom enclosed within a cake of slag.

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[24]. It is probable that the stone tools of the old BABUNGO foundries were cannibalised during the period of transition to use of the recent furnace type. The "moonstone" discussed here was cracked into four section, possibly by fire, and hence was of no use. See photograph 11.

[25]. See photograph 15.

FIG. 15 **BABUNGO BLOOM CRUSHING ANVIL**
Approximately 75cm across top.

Without exception all "BAKWANG" type furnaces that were observed had collapsed at the point where the front section of the furnace emerged from the bank of clay and had also lost their superstructure and chimney. This does not occur to the developed BABUNGO clump furnace. The reconstruction of the chimneys and parts of the furnace superstructure at IYUNG indicate that these structures were relatively "light". Doubling the volume of the NKUM or MBELUNG furnaces, which, incidentally, had the best preserved furnace fore sections, will have increased the load borne by the arched opening at the base and front of the furnace. Further, there is little point in doubling the capacity of the furnace unless the mouth through which the block of bloom and slag is to be removed is also enlarged commensurately. Accordingly, there appears to be a link between furnace capacity, size of the furnace mouth and weight of the front section supported by the arched furnace mouth. Doubling furnace capacity may have encouraged the furnace builders to lighten the front section of the furnace to ease the load borne by the arched opening supporting it. This, in turn, may have led to accidental damage through cracking in the intense heat generated in the course of the smelt. The physical evidence of the collapse of the front sections of all observed large "BAKWANG" furnace types supports this notion.

Observations of the remains of certain old furnaces in BABUNGO illustrate potential solutions to these problems. In one example the long axis of the oval section of the interior of the furnace is revolved around 90 s so that the short axis runs between the tuyère channels and furnace mouth. This was a very large furnace, 1m across at its widest internal axis, with the clay walls twice as thick as those of the smaller old furnace types. This may be a function of the greater heat generated in larger capacity furnaces. Shifting the long axis of the oval section of the furnace allows one further potential development. In

FIG. 16 **BABUNGO FURNACE REMAINS**

Compare with NKUM furnace in fig. 14.

the earlier furnace type the tuyères meet in the centre and only one block of bloom is produced. In the developed form the tuyères may be some distance apart in the plane of the long axis of the oval section of the furnace enabling the production of two blocks of bloom, one at the tip of each tuyère.

Related to this is the angle at which the tuyères pass into the cavity of the furnace. In "BAKWANG" type furnaces this is very steep, between 70 s and 60's, whereas in the developed BABUNGO clump furnace it is much gentler at c.20 s. The effect[26] of this is to reduce the length of the tuyere required to connect the forced draught from bellows to the hearth of the furnace. At BAKWANG the length of the tuyère was c.1.80m and the thickness of the walls of the tuyère only 1-2cm. Unbaked, they must have been fragile and easily broken. Reducing the angle of entry and hence the length of tuyère required may have reduced costs both in terms of materials for their manufacture and also replacements for breakages.

An obvious solution to collapsing front sections of the old furnace type was to strengthen the arched opening at the base and fortify the superstructure. The preserved walls of the arched furnace mouth at NKUM were a mere 5cm thick, the corresponding walls in a developed BABUNGO furnace were six times as thick. This reinforced arch supports a much heavier and more solid superstructure and chimney. For instance, two top vents reconstructed for the IYUNG furnace had a diameter of c.9cm, it is likely these vents had the function of providing heat to calcine the ores to be loaded into the furnace as was the function of

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[26]. Another, not insignificant, effect may have been to reduce the heat generated within the furnace by lessening the preheating of the airflow that would tend to be most pronounced where the tuyère entered the furnace at the steepest angle. This would not have been any disadvantage since the point of the operation was to reduce the ore to a bloom not melt it and produce cast iron (see Sassoon, 1963 and Rehder, 1986).

imilarly placed vents in the developed BABUNGO furnace. However, the latter were form d ar und ol le gths of tuyere which might be left in situ even after the furnace had dried and were only 3 4cm in diameter. If these vents in the developed BABUNGO clump furnace had been of a similar size to those in the old furnace type it would have seriously weakened the structure of the furnace.

Finally, the reconstructed chimneys from the IYUNa site were light and finely formed. Their weight must be related to the support provided by the furnace superstructure on which they rested. That two c mplete and unused chimneys of different sizes were found in o1e foundry suggests that one specialist made both and that they were frequently in need of replacement. In contrast the examples of virtually complete chimneys on developed BABUNGO clump furnaces are much heavier and more crudely formed[27]. Supported by a more substantial base they could be heavier and, hence, less easily damaged in the course of a smelt. BABUNGO informants indicated that they were simply repaired in situ and not normally replaced.

This scheme for the technological transformation from the small NKUM furnace, via the enlarged BAKWANG furnace to the developed BABUNGO clump furnace represents merely a model of development[28]. The various stages are not dated but should, in broad outline, correspond to the actual temporal sequence of development. The stimulus for this technical innovation may either be increased external demand leading to increase in furnace capacity or changing

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[27]. See photograph 17.

[28]. Evidence collected by Warnier (fieldnotes) in BAFANJI confirms this general model of development. In this chiefdom informants reported the presence of two BABUNGO type furnaces where the tuyères had entered the body of the furnace from the rear at a low angle and a rectangular cake of slag containing two blooms produced. The more common BAFANJI furnace was similar to the BAKWAN type with tuyères entering from the rear at a very steep angle and producing an oval shaped cake containing a single bloom.

FIG. 17 DEVELOPED BABUNGO FURNACE CHIMNEY

FIG. 18 **BAFANJII FURNACE**

regional factors of production again leading to increased furnace capacity in order to gain economies of scale or improved labour productivity. Simply increasing the size of the original clump furnace appears to have introduced structural problems which were only finally solved by the innovation of the developed BABUNGO furnace. This developed structure not only solved old problems but also introduced distinct technical advantages for the BABUNGO industry.

The productivity of the old furnaces cannot be gauged from examination of furnace structures or debris since we cannot know the volume[29] of material inputs. It seems unlikely, however, that production of two blooms in the developed BABUNGO furnace required double the material inputs associated with the older furnace type. Although, this might entail a small reduction in labour costs in so far as doubled output might be obtained for the same period of time entailed in the smelting process, the major labour costs were not incurred in this but in the collection and preparation of material inputs.

It does not seem implausible that the larger capacity of the furnace, together with increased insulation provided by a reinforced front section and the threefold reduction in the size of the roasting vents, served to generate greater heat for a given fuel input than was the case with the old furnace type. Simple visual examination of baked furnace walls indicates a 50-100% increase in thickness from old to recent furnace types. The major benefit of this would be to reduce fuel input costs and vitiate the effects of potential constraints imposed by finite fuel resources on an intensive and sedentary industry located in a grasslands environment.

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[29]. In the course of a smelt in a clump furnace alternate charges of fuel and ore were loaded continuously throughout the smelt. Accordingly, the internal volume of the clump furnace, unlike that of a cylindrical furnace associated with a single charge load, gives no direct indication of volumes of material inputs.

Chronological Differentiation of Debris

In order to draw inferences from relative levels of output, as signalled by volumes of debris surveyed, it is necessary to differentiate clearly the debris associated with each furnace type. This will permit an approximate quantification of levels of BABUNGO output for the period 1780-1930 by reference to the volume of debris associated with the recent clump furnace type.

The configuration of the associated heap of debris is generally distinct for each furnace type. "BAKWANG" foundry heaps were typically low and widely scattered in relation to their total volume, while those linked to the developed furnace type were much higher and more compact. This is illustrated by average figures for height, surface area and volumes :-

Table 4

Debris Configurations

	"BAKWANG" Furnace Type	Clump Furnace
Height	2m	4m
Surface area	477m2	1038m2
Volume	442m3	2215m3

It seems probable that as population concentrated within the defensive perimeter grew, pressure on available farming land increased leading to effective land scarcity and the tendency to pile up the smelting debris as high as possible in order to maximise the conservation of cultivable land within the confines of the war trench. Women farming outside the trench risked capture by small bands of armed raiders and had to be guarded by young male warriors. It is still possible today to see bolt holes and excavated chambers cut into the sides of the trench designed to provide refuge for women farming beyond the trench.

It may be argued that a develcped furna e might simply replace an older "BAKWANG" furnace type on site so that ssociated debris could not be differentiated. The association of misfortune with the "BAKWANG" furnace type makes this unlikely. The older furnaces appear to have been preserved, often under small shelters, and t replaced. Also, on the compound land of wealthy lineage heads both furnace types are to be found with separate debris heaps. Further, the fact that double the number of furnaces were located in BABUNGO over the number found in BAMESSING, which ceased smelting ore in enclosed furnaces c.1870, also argues against overlapping debris volumes.

If old furnaces were replaced with the developed form in situ it seems plausible that there should have been a notion of continuity in terms of relations with the mystical force "NYWI", or spirit, associated with the successful transformation of ore to bloom in the smelting process. This force was focused on the pot of leaf medicines buried deep beneath the furnace hearth. The conceptual basis of this is that through the activating function of the leaf medicines life and fertility ar extracted by this force from the earth and transformed into bloom. When neglected, ie. when regular libations cease, this mystical force is thought to turn against those living close by and extract life from them so that sickness and other misfortunes ensue. This is the basis of the association of misfortune with the older "BAKWANG" furnace sites.

Another reason why new furnaces should not simply hav replaced old ones in situ may lie in the nature of the validation of TUNAA status of those establishing new foundries. It was a prerequisite for this that <u>all</u> existing TUNAA should attend the ceremony in which the furnace medicines were placed and the foundry blessed. It was the custom for these to receive payments of cow [illegible], a large share of the feast, as well as special gifts of meat, wine and palm oil to carry back to their compounds. If the developed furnace had been viewed as simply a modification of the old one, then it could have been built in situ and little or no payments would be due. However, it was intr duc d bv YIGHAU as an establish d an distinct technolo y brought from his home t rritory. Accordingly, payments and gifts were due to him and not the est bli he TUNAA of foundries using "BAKWANG" furnaces. H nce, the deception of the false presentation of an innovation as an established technology from another place.

A further factor in this may be linked to the progressive increase in capital costs entaile in building larger furnaces and more elaborate foundries that is associated with the historical d velopment of iron production in this area. It will be argued below that this high degree of capitalization created a large network of social relations that bound together the TUNAA with those, especially non-kin, who had contributed labour in building foundry and furnace in return for access to the equipm nt and skills necessary to profit from iron smelting. This investment in the future may have encouraged an increasing degree of capitalization in so far as the larger the furnace and foundry became the greater the bundle of relations created between TUNAA and non-TUNAA that ensured the long term running of the foundry to the material benefit of all concerned. This factor may have been more significant than any associated technical inn vation and together with some practical considerations may explain why old furnaces were not simply replaced with the new model.

The practical point is that it would ha e been extremely difficult to dig out the bank of pounded clay in which the "BAKWANG" furnace hearth was embedded and repla e it entirely with a newly formed developed furnace. At the BAKWANG site the bank of clay and enclosed furnace measured c.5ms^2 taking up a large proportion of the foundry floor. It would have been less costly in terms of labour simply to build a new foundry and equip it with the movable ston s and other items from the old foundry. This appears to have teen the case where both the old and new furn'ce t'p s are found on the compound land of senior title holders. While lineage heads in this position would have had a pool of kin to draw on for labour, other TUNAA not so fur unate ay have looked on as those who had previously paid "rents" for the use of their foundries hurriedly shifted to work in the more productive foundries with new furnaces.

Relative L vels of P^roduction

The distribution[30] of old "BAKWANG" furnaces and developed BABUNGO furnaces ard actual and relative volumes of associa ed debris permit some inferen_es to be drawn.

The main points centre on the heavy concentration of old furnaces in the central FINKWI sub wards of ITIYOE, TOBO and NKAFINKWI, in which the majority of smiths came to be located by the end of the nineteenth century. The high volume of debris associated with the old furnace type is not reflected in the subsequent volumes of new furnace debris. Linked to this is the massive concentration of smelting debris from the developed BABUNGO furnaces in sub-wards surrounding the FINKWI area.

The three FINKWI sub-wards of ITIYOE, TOBO and NKAFINTENG have 42% of all old furnaces and 35% of the total associated debris. This suggests strongly that this area was the centre of iron working employing the old furnace type before c.1780. The same sub-wards have only 14% of new furnaces and 11% of the total volume of associated debris.

It is in the immediately surrounding sub-wards of CHIKAU, NKAFINTENG and TITOH that c.50% of debris associated with the developed BABUNGO furnace is located. The increase in production here signalled by the difference in volumes of debris associated with the old and new furnace types is striking. A twenty-fold increase in NKAFINTENG, a ten-fold increase in TITOH, and the volume of debris in CHIKAU rises from zero to $16000m^3$. What inferences may be drawn from these figures?

It could be argued that smelters using old furnaces gave them up and, instead, took up smithing. This is possible but unlikely given the sophisticated and developed skills acquired over an extended period of time that were needed to forge ironware. Also, this would not explain the

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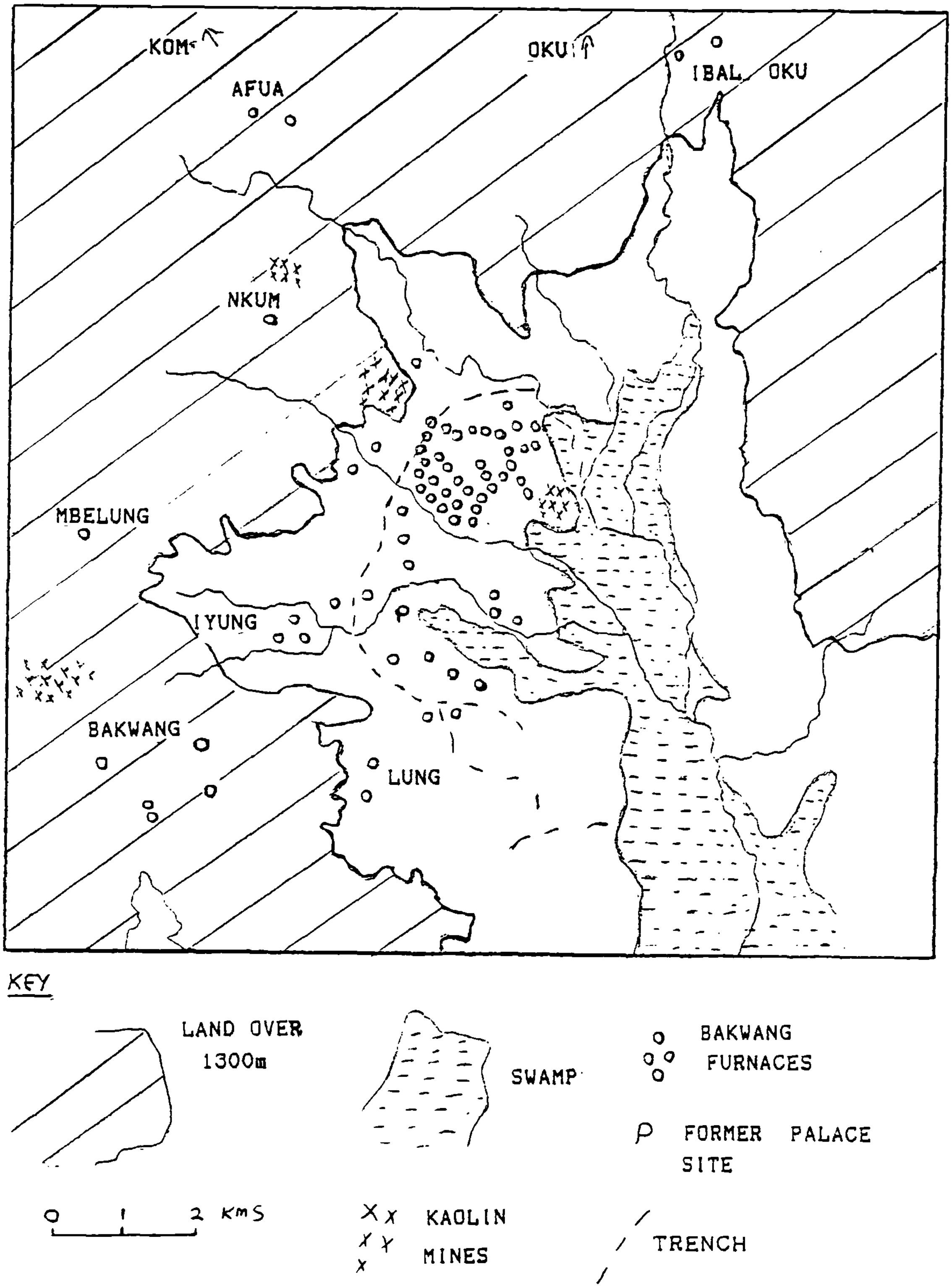
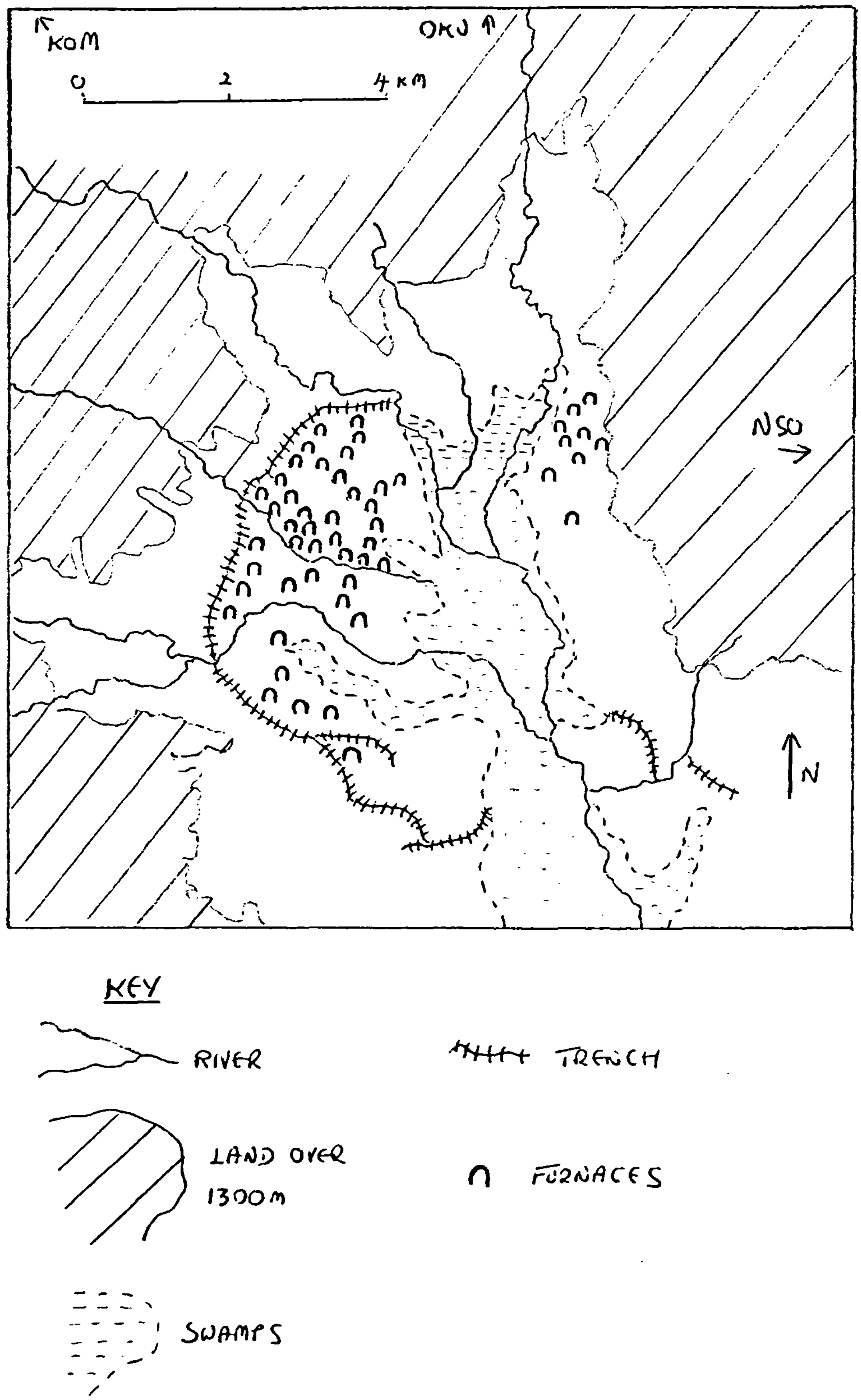
[30]. See Appendices B and C, and maps 8, 9, 1 , 11 a d 12.

MAP 8 DISTRIBUTION OF BAKWANG FURNACE TYPE

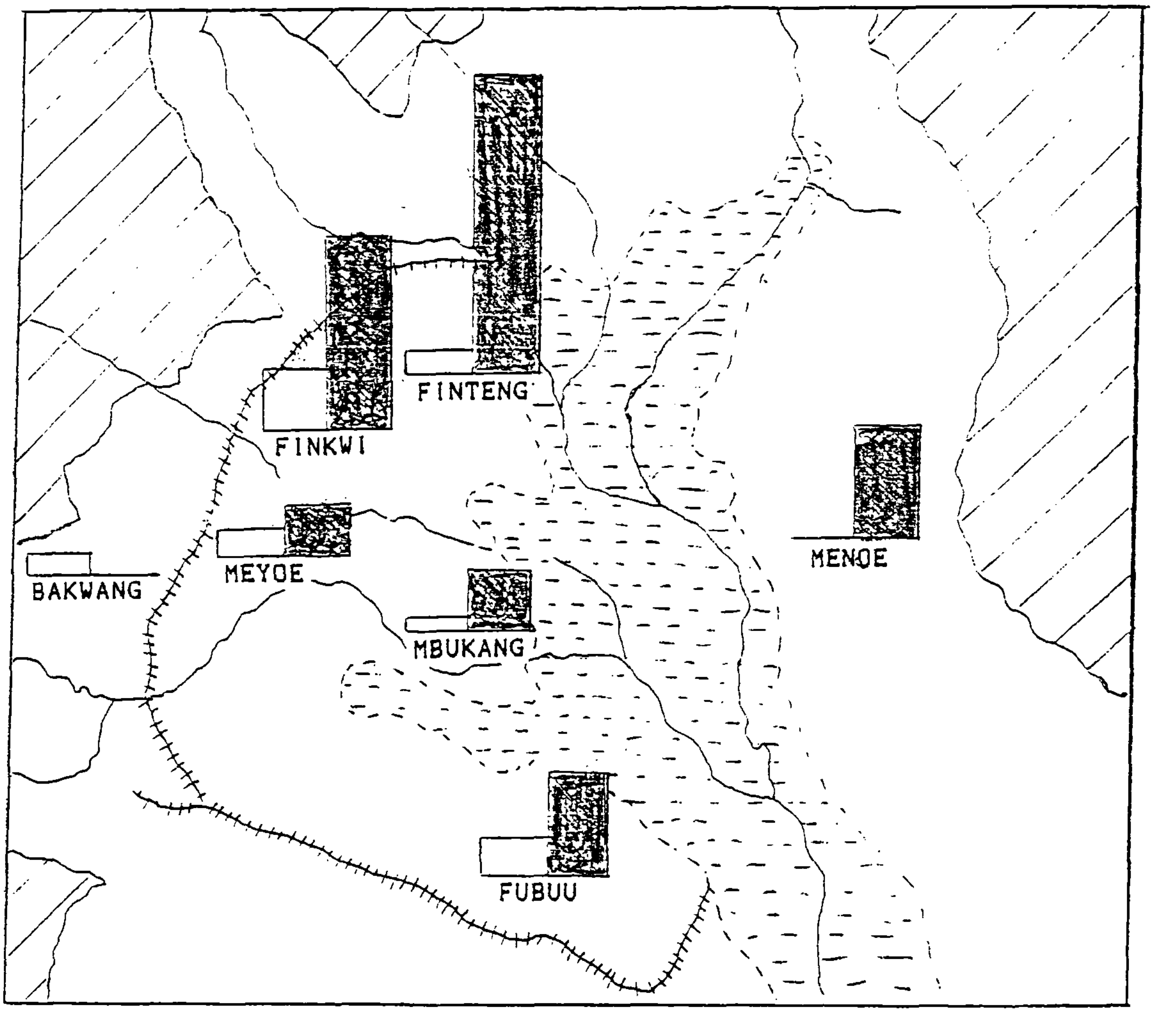


MAP 9

DISTRIBUTION RECENT CLUMP FURNACE TYPE



MAP ABSOLUTE VOLUMES of DEBRIS

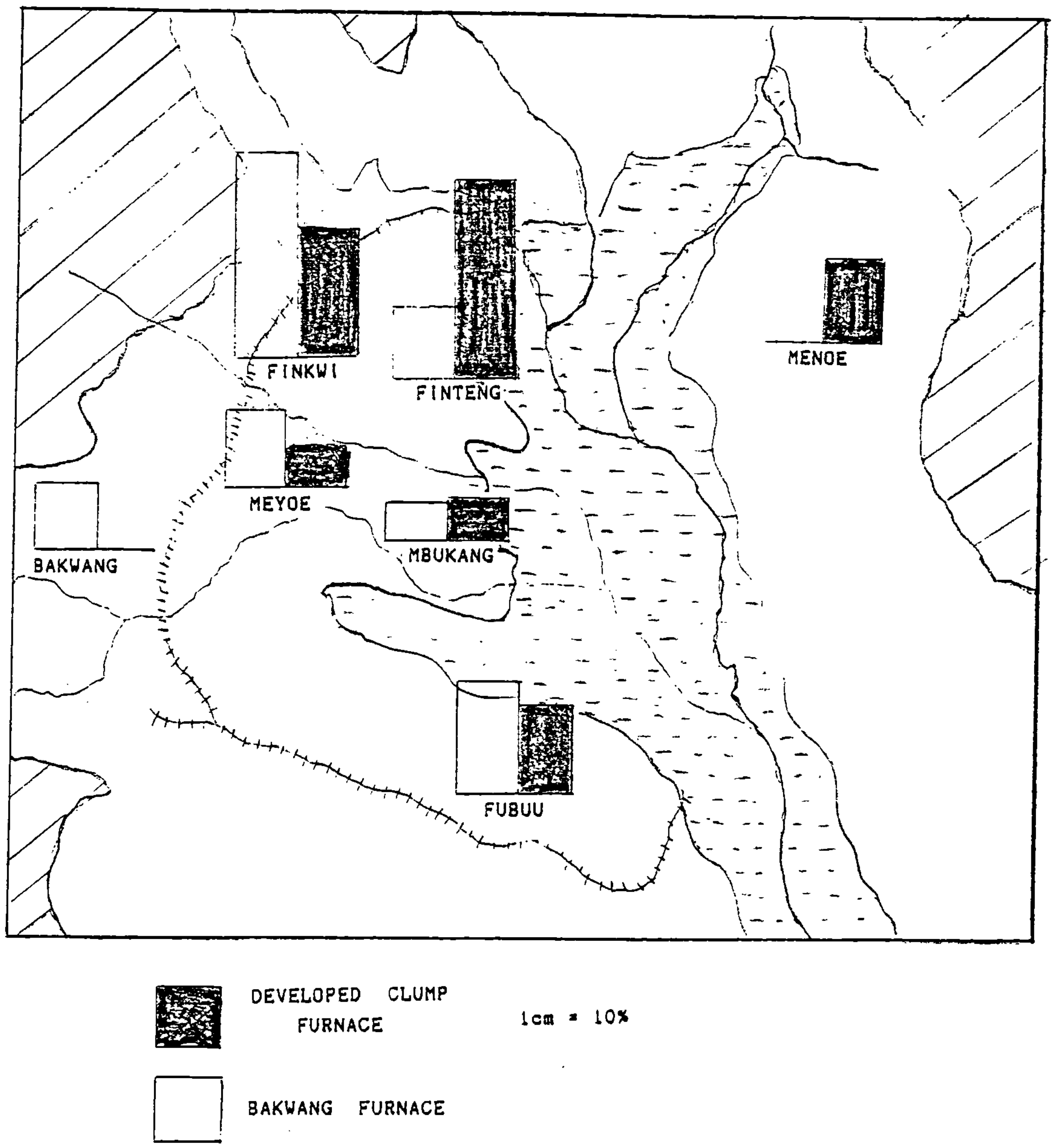


DEVELOPED CLUMP FURNACE

1mm = $1000m^3$ SMELTING DEBRIS

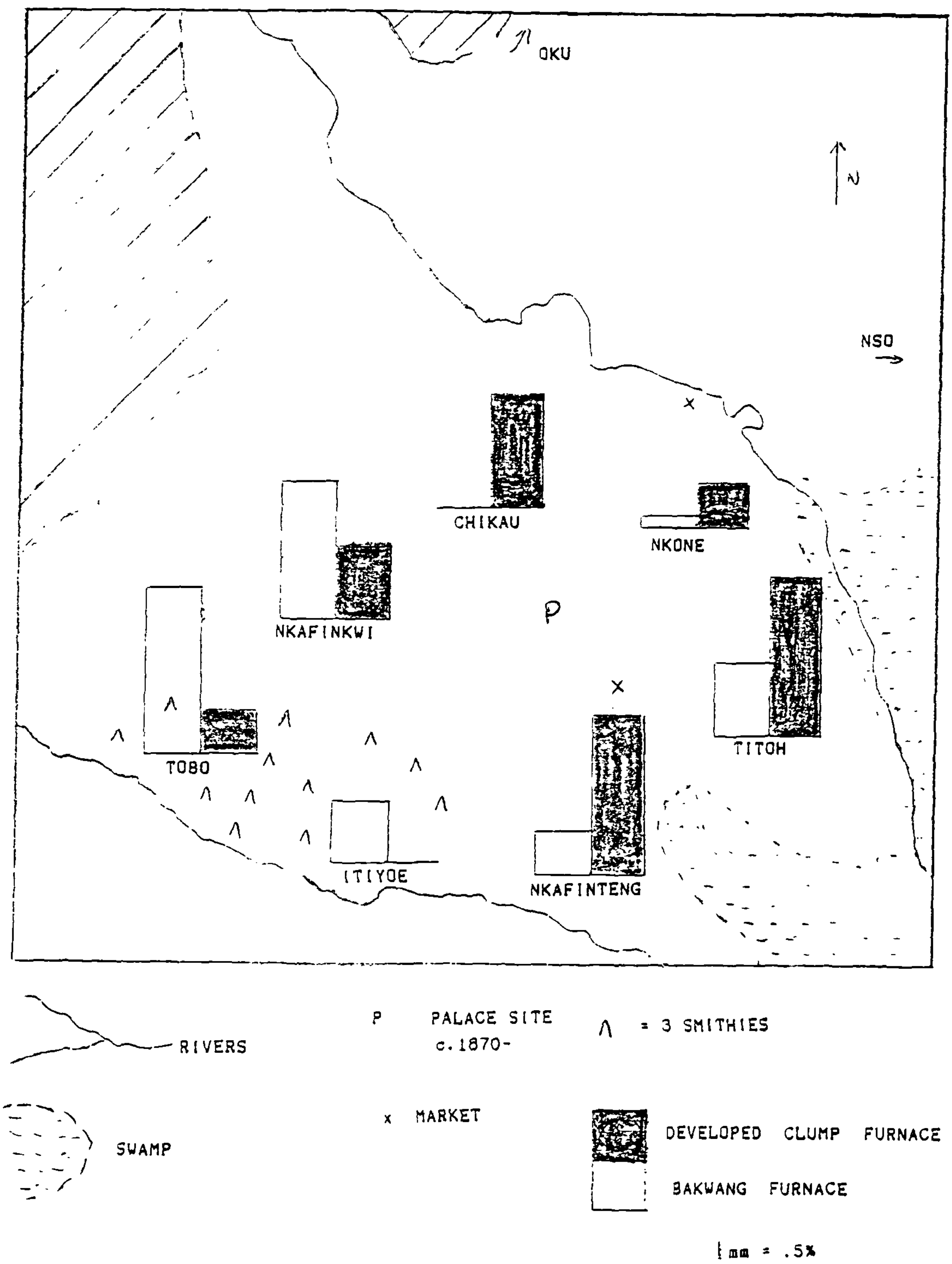
BAKWANG FURNACE

MAP VOLUMES of DEBRIS RELATIVE to TOTAL



MAP

BABUNGO CENTRAL SUB-WARDS : PERCENTAGES TOTAL SMELTING DEBRIS



localization of smiths in these three sub wards alone which itself raises further problems.

The three sub-wards where virtually all BABUNGO smiths were situated at the end of the nineteenth century appear to have lost a large number of smelting groups. The 28 "BAKWANG" furnaces located here indicates 28 smelting compounds, at the very least, and very probably a large number of other smelting compounds without foundries. Where did they all go? It seems plausible to suggest that they were absorbed into expanding smithing lineages and also into expanding lineages using the developed clump furnaces in the surrounding areas. This may partly account for notions of misfortune associated with the sites of these foundries. However, 200 years after these events it was not possible to gather genealogical data to substantiate this hypothesis. Nevertheless, the following sequence of developments in settlement and technology are suggested.

Prior to 1780 the FINKWI area constitutes a major centre of production and smelting compounds, using the old furnace type, co-exist alongside smithing compounds. From c.1780-1800 the developed BABUNGO furnace is adopted throughout the chiefdom. Smiths resident in FINKWI turn to buy the cheaper bloom produced in the more efficient developed furnaces. Smelting groups, co-resident with smithing lineages, with old furnace types begin to become impoverished as they lose the market for their bloom produced at greater cost in the less efficient old furnaces. Gradually these smelting lineages become absorbed into expanding smithing lineages and also into expanding smelting lineages using the developed furnace type as wealth created in the new technological regime is converted into bridewealth and exchanged for the daughters of the relatively impoverished lineages associated with the old furnace type. This leads to the demographic in a of expanding smithing and smelting lineages using the new furnace type at the expense of the increasingly impov ri-hed lineages that had pr vi usly used the old furna_e type.

The association of misf rt n_ w'th th rem 'n t "BAKWANG" furnaces support the ar_ument that former melting lineages in these _entral FINKWI sub wards suffered in this way. It may reflect an actual historical experience as those who had operated the old furna__s failed to prosper and became absorbed by more prosperous groups operating new furnaces. It is of inter_st t at no such beliefs of misfortune have, to date, become attached to the now defunct developed clump furnaces.

While the pre-1780 centre of production is lo_ated in the central FINKWI area, the political hub of the chiefd m lay some distance to the west surrounding the former palace site where the entire senior ranking title set of the chiefdom, the VOETUGHAU, resided with their localised clans. This area also has the second highest percentag_ of old furnaces and associated debris. The relative volumes of smelting debris associated with old and developed furnaces signal a three-fold increase in production but the number of foundry sites remains constant. Here, t__, both old and developed furnaces are found on the compound land of the clan heads in whose descent groups the senior ranking titles are vested suggesting these p werful clan heads had the resources to make the transition from old to new furnace types.

Finally, it should be noted that a significant number of old furnaces and associated debris were found in the foothills overlooking BABUNGO. Apart from the anomalous instance of a developed furnace built by a BANGOLAN individual prior to the return of that hi fdom to its original settlement site, there is no evide ce that any new furnace type was built outside the defensive perim_te_.

An ı al utput of Dev_l d Cl r Fı r e

In BJ) the deb s ass ated w th th d " l p d furna type represents a t tal volum of 1 3.000m³. It is possıbl to calculate the number of individı al m lts this represents on the basis of the volume of debris likely to have been produced in the course of a sıngle smelt. This will permit an approximate estimate of the gross output of iron on the basis of observations recorded by J_ffreys in 1942 and the statements of informants formerly acti e in the industry.

At the BAKWANG site an examination of the com siti n _f a heap of debris gave the following figures :-

Table 5 Composition of BAKWANG la he p

fragments of tuyeres	=	5%
slag	=	60%
ash, organic material,	-	35%

Observation of heaps in BABUNGO that had been partially dug away, leaving a clean section, by the Highways department indicated a similar composition for heaps asso iated with the developed furnace type. This gives a total of 80,000m³ of slag, ie. 60% of the total debris of 133,000m³.

In order to calculate the average volum f la produced in a single smelt it was necessary to extrapolate from the physical limitations of the interior v lume of th furnace ard the size of the base openin thro gh which th block of slag and bloom had to be removed. Also t k n ı t account were the statements of informants reg rdin the volume of slag discarded at the end f ea h sm lt. This gives a figure of c.0.1m³ of slag discarded, on verage, at the end of each smelt. Hence, one cubi metre of slag represents ten smelts and the total vol m of C. 0m³ associated with the developed furnace type repr en s a total of 800.000 individual smelts. This suggests an annual average production of 5333 smelts for the period 1780-1930.

5333 smelts per annum may seem an unacceptably high work rate. Statements of elderly informants indicate that c.60 developed furnaces were in operation at the turn of the century. This implies that each furnace was in use for an average of approximately 90 days each year. Census and genealogical data were gathered from elderly informants in order to list all compound heads with titles and principle occupations for the last decade of the nineteenth century. This produced a total of c.300 remembered compound units of which a minimum of 200 were intermittently active in smelting iron. If the figure of 5333 smelts per annum is not too far from reality and if each of these 200 compound units was able to provide the nucleus, at least, for a smelting group, then each unit may have made an average of c.26 smelts each year. In this context it is noteworthy that associated transportation costs were virtually entirely taken over by neighbouring chiefdoms in the final decades of the 19th century. Further, the momentum of production had reached such a degree by the first decade of the 20th century that labour for the collection of inputs, especially ore, was being hired from neighbouring chiefdoms such as BABA.

In the course of his observations Jeffreys[31] recorded that each bloom produced from one smelt weighed on average 40lbs, and that this yielded sufficient forgeable iron to make 3 hoes each weighing c.4.5lbs, after shingling to remove slag. This was confirmed independently by informant's statements. A smelt produced two blooms. Hence, this leads to a figure of a total of c.65 tonnes[32] of forgeable iron produced annually between c.1780-1930.

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[31]. 1942.

[32]. This figure does not include the 10lbs or so of bloom that was extracted by youths in the foundry from pockets enclosed in the slag as their recompense for work.

It is clear that levels of production were not constant throughout this period. If the new furnace type was first introduced c.1780 it is probable that it only fully displaced the earlier "BAKWANG" furnace type some ten to twenty years later. Furthermore, production did not continue at full output until 1930 but went into serious decline from c.1910 when the Germans began to import cheap European hoes which rapidly replaced local hoes, that had always been the main item of smithing production. Accordingly, production is likely to have risen steadily to peak levels that were attained between 1880 and 1910 declining rapidly thereafter. In 1942, when Jeffreys observed the process of smelting, only two foundries remained out of a total of more than sixty that had been operative at the turn of the century.

The figures given above in no way represent an accurate record of actual rates of output. They are presented simply in order to give an impression of what potential levels of production might have been achieved, worked out on the basis of the physical evidence of recorded debris taken together with the actual observation of the output of the smelting process by Jeffreys together with the statements of participant informants. Nevertheless, these figures may seem unlikely given usual preconceptions of African rates of precolonial production. Research carried out in the Bassar and Igbo areas[33], since the original period of fieldwork, indicates that the Ndop plain was not unique in being a major centre of iron production characterised by high levels of production. However, in terms of output per person, and for the limited period of use of the developed furnace type, BABUNGO far outstrips these other more populous and extensive zones of production. In order to further substantiate this it will be necessary to briefly review the potential demand for ironware in the region and beyond.

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[33]. Barros, 1981, 1982, 1983, 1985 and 1[illegible]. Goucher, 1983 and 1984. Okafor, 1993.

Potential Regional Demand

It is clear from the material record that the Grassfields was well supplied with iron tools and weaponry. Each woman had her hoe, weeding knife, various kitchen knives, and an iron axe for splitting firewood. Men had spears, cutlasses, knives, various tapping tools, bells for hunting dogs, iron gongs, and ornate weapons for dancing on festive occasions. Specialist craftsmen all made use of extensive sets of iron tools. The domestic hoe, however, was the major single item of ironware that was required by each household in order to feed itself.

The kingdom of BAMUM, with a population of c.60,000 at the turn of the century, depended almost entirely on external sources for its ironware. According to Fein Wuhrmann[34], NJOYA, the BAMUM king reigning at the turn of the century, was desperate to reduce this dependency and sent treasures to the BABUNGO FON in a vain attempt to learn the secrets of iron smelting from him. Each BAMUM woman required a hoe, the average life of which, according to Jeffreys and local informants, was three to four seasons. In BAMUM old hoes were not welded to form new hoes but used as scrap in the manufacture of other implements. Accordingly, BAMUM required up to 8 tons of iron annually simply to replenish its stock of hoes. Data collected in BABUNGO on trade flows indicate that this ironware was carried from BABUNGO by traders from the neighbouring chiefdoms of BABA, BANGOLAN and BABESSI[35] in return for a substantial flow of palm oil and slaves.

Warnier[36] has estimated the total annual demand for new hoes, at the end of the nineteenth century, for the North-

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[34]. 1925.

[35]. Ankermann reported in Baumann and Vajda (1955) signals a large trade in scrap iron from NSO via BABESSI to BAMUM.

[36]. 1975.

West province to be c.26 tons of iron. This was calculated on the basis of the population c.1890 as half that of the 1953 census, and taking into account the average life expectancy of a local hoe. Barbier[37] has indicated that, in the immediate precolonial period, no iron was being smelted in the populous BAMILEKE area immediately to the south of the Ndop plain. The total population of the BAMILEKE chiefdoms is likely to have been very similar in size to, if not somewhat larger than, that of the Bamenda Grassfields region.

Accordingly, a figure is arrived at approximately 60 tons of iron required annually to replenish hoe stocks for the populations of the wider Grassfields region. If it can be assumed, for the sake of argument, that this demand for hoes represents half the total annual demand for ironware in these areas and that, annually, one third to one half of the demand for iron for other implements was supplied in the form of worn and damaged hoes, then the total annual demand at the end of the nineteenth century is likely to have been c.100 tons of iron.

It is unclear how much or how far iron produced in the Grassfields was traded beyond this region. There are some indications[38] that the Grassfields was supplying the upper reaches of the Cross River basin. The closest source of ironware being the Atlantic coast at Calabar where European ironware was imported. However, it seems plausible to suggest that the iron producing centres supplied all the requirements of the densely populated wider Grassfields region, a population of c.500,000, and many of the surrounding areas throughout the nineteenth century. The time depth of this trade is unknown. However, there are suggestions[39] that ironware from the Cameroon hinterland

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[37]. 1973.

[38]. Latham, 1973.

[39]. Latham, 1973.

reached the Calabar area before the importation of European iron began in the seventeenth century.

All the indications are that the bulk of this ironware, for the second half of the nineteenth century, at least, was coming from the Ndop plain. The first European to reach the area in 1889, Zintgraff, noted that,

> " the BABUNGO are expert iron smiths........ their swords, knives and hoes are widely distributed throughout the country."

The reports of the early European explorers and administrators, Hutter, Guillemain, Vollbehr, Drummond-Hay, Hunt, and Jeffreys all confirm this state of affairs. In 1925 Drummond-Hay assessed that 16% of the total male population of the Ndop plain were engaged in work related to iron production. At this point in time iron smelting had been largely given up seemingly in the face of imports of cheap European hoes and rapidly increasing availability of scrap! In light of this evidence and with due regard to the enormous volumes of slag which dominate the landscape of the chiefdom of BABUNGO it is tempting to speculate that over 50% of the total annual demand for ironware in the wider Grassfields region in the second half of the nineteenth century was satisfied by BABUNGO production alone.

In order to understand how a relatively small chiefdom, with a population probably only a little over 3000 souls at the end of the nineteenth century, was able to achieve such enormous levels of production it will be necessary to examine closely the nature and organisation of the technology employed.

BABUNGO IRON SMELTING

Introduction

Smelting in BABUNGO had virtually ceased when observed by Jeffreys in 1942 and no foundry remained standing when this research was undertaken in the 1970s. Accordingly, the following description of iron smelting is based largely on oral reconstruction supported wherever possible by published and unpublished accounts[1] recorded while the industry was still operative. These latter sources are frustratingly limited and not altogether reliable not because of any inherent bias in the observer but because the details of the technology were concealed or deliberately mystified. Vollbehr, for instance, visiting BABUNGO in 1911 put it in blunt terms:-

"Der Schwarze zeigt eigentlich nur, was er will...Seine Industriestätten zeigt er auch nicht gern, und es ist wohl nur sehr wenigen Weissen vergönnt gewesen, diese Hochöfen in voller Tätigkeit zu sehen."

It is unclear how much of the smelting process he was allowed to see and how much of his description he picked up from other sources. Guillemain, a geologist visiting BABUNGO in 1907, was given a worthless lump of quartz[2] as a sample of ore which he claimed "wie es bei meiner Anwesenheit in BABUNGO geschmolzen wurde". Hutter writing in 1905 reported that he was refused permission to witness a smelt. At the time these observations were made the BABUNGO industry was still in its heyday, although soon to

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[1]. These include Hutter, 1905; Guillemain, 1908; Ankermann, 1910 (published 1959); Vollbehr, 1912; Malcom (on BAGHAM smelting), 1924; Drummond-Hay (unpublished), 1925; Jeffreys (unpublished) 1942.

[2]. His later analysis of this sample showed a SiO content of 56.72%. This is likely to have passed unaltered through the smelting process (Killick, personal communication).

be undercut by the importation of cheap European hoes, and the secrets of its technology still jealously guarded.

By the time this research was undertaken the industry was considered sufficiently defunct for there to be no such qualms about revealing the details of its technology. However, there were strong echoes of earlier attitudes in the repeated insistence by informants that the smelting process depended on the use of medicines knowledge of which had been lost through the passage of time. Apart from the aspect of secrecy and use of medicines other likely bias in contemporary accounts of smelting may include overstressing its exclusivity, in terms of sexual prohibitions and the exclusion of post-pubescent females, and the onerous nature of the work.

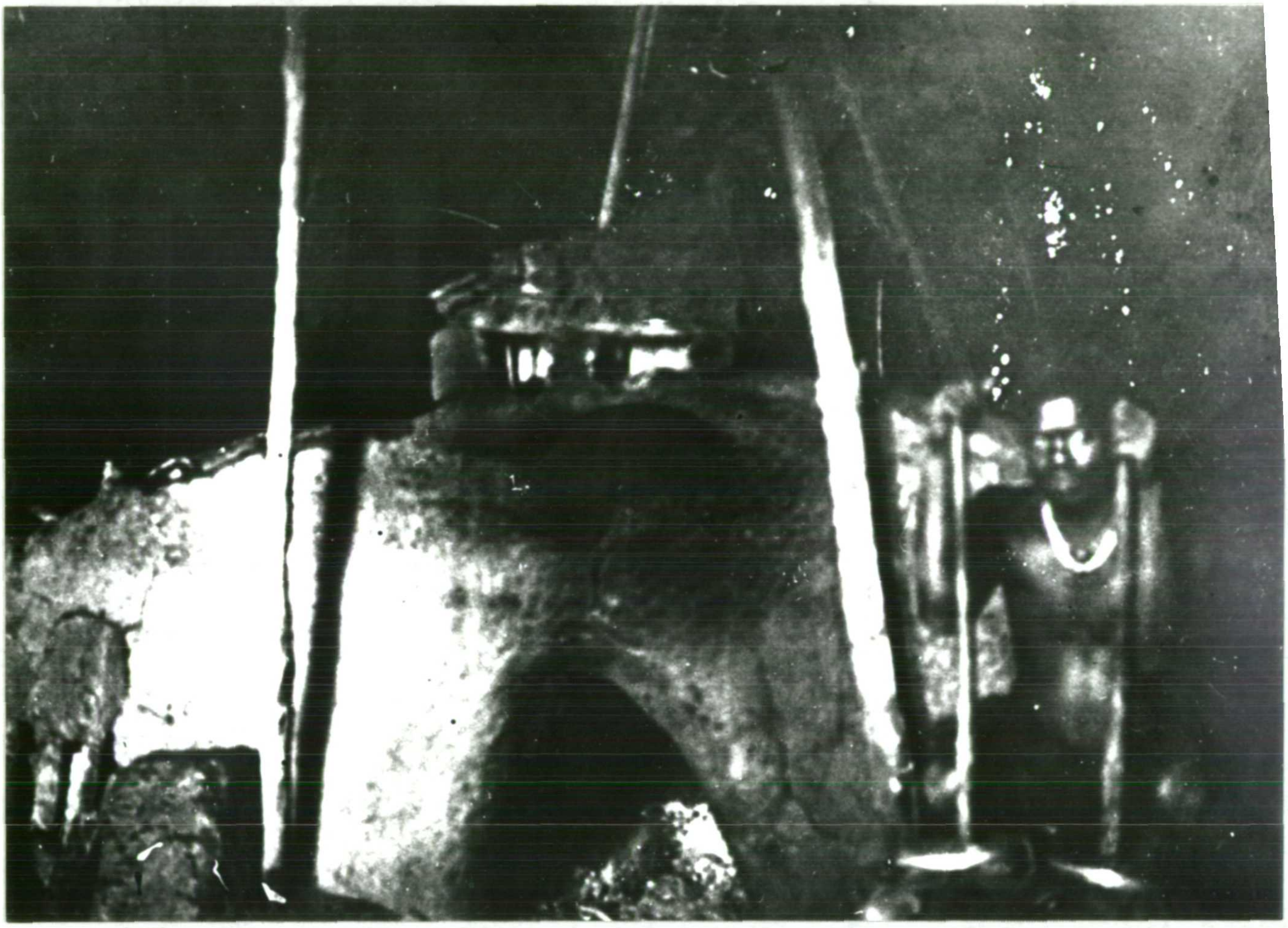

FIG. 19 **DEVELOPED BABUNGO FURNACE**

Photograph by Adolph Diehl 1905/6

Linden-Museum Stuttgart : Folder WA II. Kam 85

A.C. Pl. 1690

From the collection of Christraud Geary.

Establishing a New Foundry

This section will deal with the construction of the developed BABUNGO furnace and the rituals and ceremonies surrounding the establishment of a new foundry. An estimate of the labour costs will be made and the nature of this labour briefly examined.

Clump Furnace[3]

The developed BABUNGO furnace was a large clay structure, c.4m in width, partly set in a bank of earth, enclosing a central cavity where reduction of iron ore took place[4]. Alternate charges of ore and fuel were loaded through the chimney (A), c.32cm in diameter. Tuyères inserted through the two passages (B) at the rear of the furnace provided a forced draught from two sets of twin bellows. The aperture (C) at the front and base of the furnace, c.75cm high, sealed with old tuyères, clay and potsherds during the course of the smelt was only opened upon completion of firing to allow the removal of the block of slag and bloom. A crude box-like construction of old lengths of tuyères laid horizontally and vertically was placed over four vents (D,E), located at the top of the furnace, ore was roasted here prior to being crushed and placed inside the furnace.

The large, rectangular structure of the furnace, 4m in length and 1.5m at its highest point, necessitated a considerable expenditure of labour in the extraction and preparation of the clay from which the furnace was

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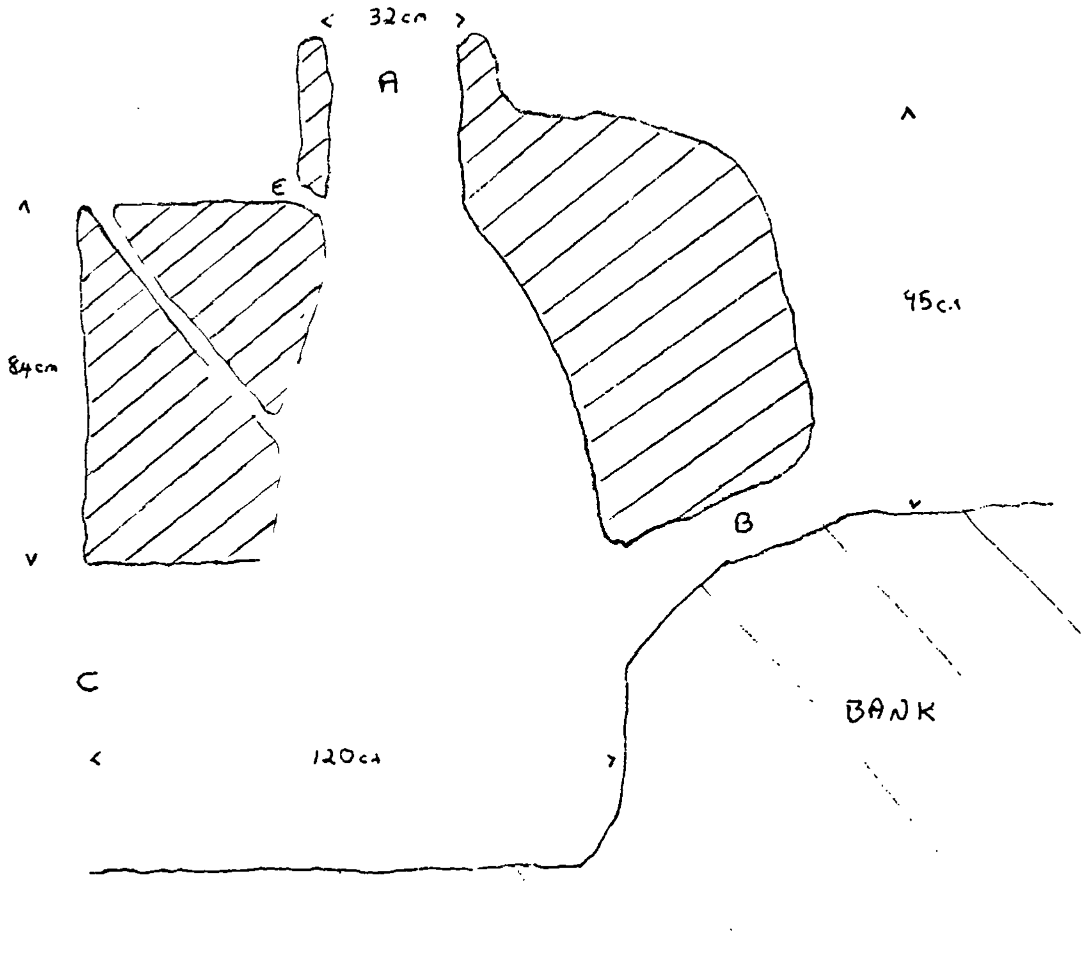
[3]. This description is based partly on the observations of a BABUNGO clump furnace by Ankermann in 1909 reported by Baumann and Vajda (1959), and Vollbehr (1911), and the accounts of informants who worked in the foundries in the early decades of this century, and also observations of furnaces remaining relatively intact in the 1970s. See photograph 13 taken by Diehl c.1905/6, kindly made available from the personal collection of Christraud Geary.

[4]. See Diagram 3.

DIAGRAM 3 RECENT BABUNGO CLUMP FURNACE



constructed. This clay was an impure kaolinite[5], formed by the decomposition of feldspar weathered out from the granitic rocks located in the foothills overlooking the plain. It was mined from pits, up to 7m deep, with interconnecting lateral galleries[6] that followed the extrusions of kaolinite. Descending shafts averaged 70-100cm. in diameter and widened out to form large galleries at lower levels where the bulk of the kaolinite was located. Two major areas of mines[7] were located, that were exploited in the nineteenth century, both less than one hours trek from the centre of the chiefdom. At one site more than 80 pits were discovered in an area less than 500m^2. However, over 300 pits were located in the foothills surrounding the chiefdom, indicating that the present number of surviving furnaces may represent somewhat less than the total of furnaces ever built in the area.

The extraction of this clay was a potentially hazardous task with pits occasionally collapsing and burying those within. The clay was dug out, carried in baskets to the compound where a paved stone floor for the foundry had been prepared, and pounded on this floor with heavy wooden pestles. Groups of young males worked pounding the clay, mixing in a little water from time to time, continuously over a number of days until it had reached the consistency of soft corn fufu. It was then left for a few days before specialist furnace builders were called to work.

The first step in furnace construction was the laying of a foundation bed of pounded clay[8] on which was placed a

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5. Zacharias, 1979.

6. See photograph 10.

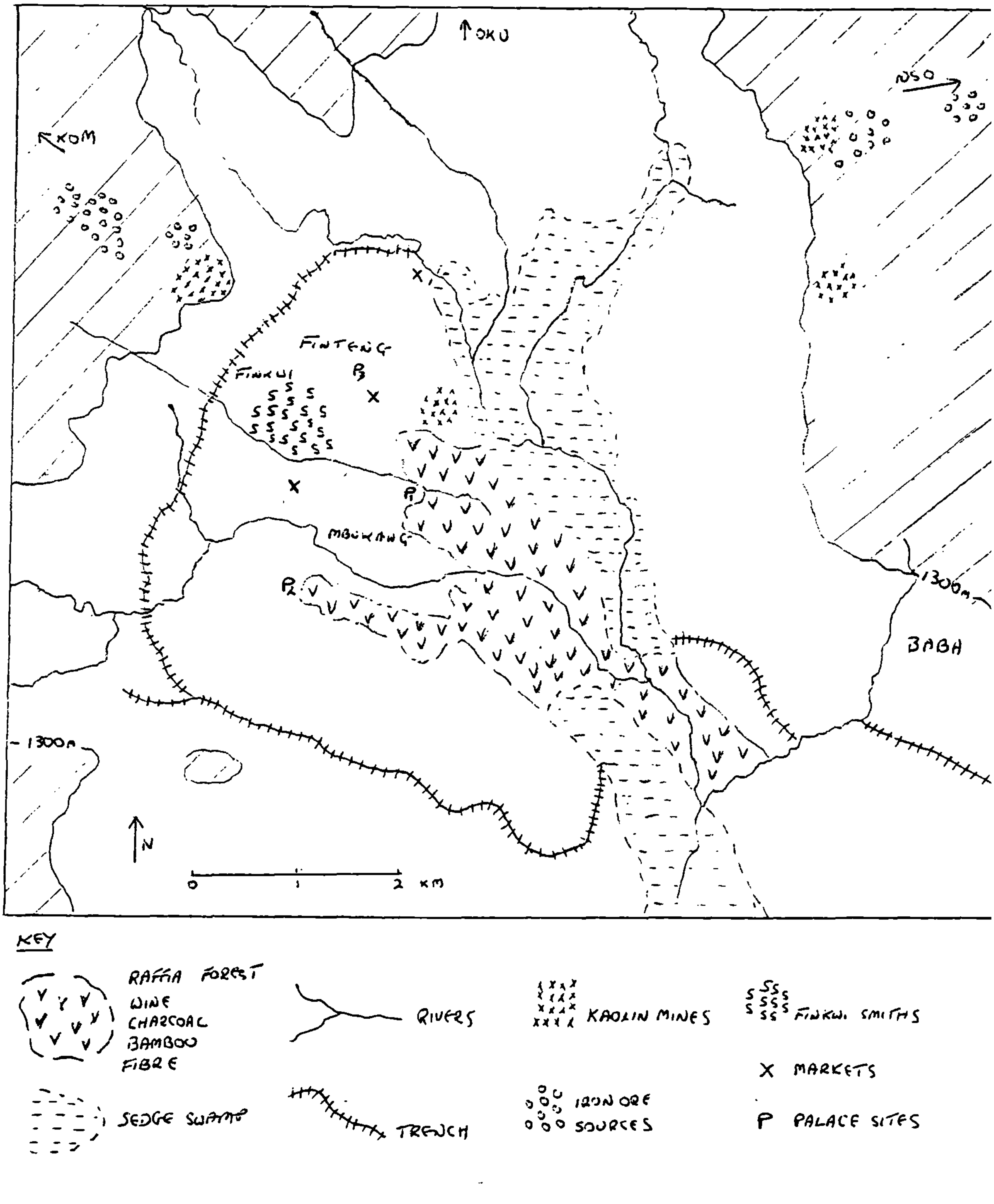
7. See map 13.

8. The clay at this point was still soft, moist and plastic. It was passed to the specialist furnace builders in the form of "bricks" but the process of moulding and smoothing the clay into the body of the furnace left no visible trace of brickwork.

FIG. 20 KAOLINITE MINE

Lateral gallery.

MAP 13 DISTRIBUTION of RESOURCES



layer of stones and then another layer of pounded clay on top. The central cavity of the furnace was formed by building the pounded clay up around a large, firmly tied conical bundle of thatching grass. Two passages (B) for tuyères, at the rear of the furnace, were similarly formed by moulding up over plantain stems placed sloping gently down toward the centre of the hearth. The larger apertures (C,A) at the front and top of the furnace were formed by building up pounded clay over two smaller bundles of grass. Two vents (D) leading down into the centre of the hearth were formed using either lengths of old tuyères or small plantain suckers.

When the body of the furnace was completed the exterior walls were rubbed down and smoothed off. As the clay dried the bundles of grass and lengths of plantains were pulled out little by little to leave the hearth, vents and apertures intact. Also the body of the furnace was beaten from time to time with heavy sticks, presumably to remove air pockets. The completed furnace took from 8-12 months to dry out fully, before any smelt could take place. The drying process was aided by burning quantities of dried wood chips in the hearth. Finally, a lining of mixed kaolinite and laterite plaster was applied to the interior surfaces of the furnace hearth. This lining, 3-5cm. thick, needed replacing frequently once the furnace was in regular use.

Apart from the interior lining, the body of the furnace rarely, if ever, required repair. A furnace in operation over some decades might eventually develop serious cracks. The damaged area was broken away leaving the remaining solid structure standing. Fresh quantities of kaolinite were brought and pounded together with pieces of clay from the broken section and this mixture used to build up the furnace.

Of the c.60 furnaces in operation at the turn of the century only one appears to have been constructed since 1890. From genealogical and other evidence it seems that the majority of foundries were established at least 5 generations ago and that most furnaces only required major repair once, if at all, in their lifetime. It may seem unlikely that these furnaces could have been in use over periods of 50-60 years, a conservative estimate, without suffering breakages or needing complete reconstruction. However, furnaces exposed to the elements for the 50 years since the industry ceased, are remarkably well preserved which certainly attests to their durability.

Foundry[*]

This, too, was a relatively permanent structure built from raffia-bamboo, wooden posts and roofing grass, but it did tend to catch fire occasionally. It was a large rectangular building, 5m by 13m in plan and c.4.5m high. with two large sloping roof sections and two vertical gable walls, with a ceiling platform for storage of materials. It was built immediately after the furnace had been formed.

The first stage was the erection of two forked support posts and a central cross-beam supporting the roof sections. This operation was considered susceptible to malfeasance by witches and certain precautions taken. In advance of the work, which took place in darkness at night, all strangers, slaves and children were driven away. Two post holes were dug, each c.1m in depth, at either end of the foundry. The posts were raised up by means of a bamboo pole attached to one end, while the other end was placed over the post hole up against a square of interlaced bamboo that allowed the tip of the post to be manoeuvred into the hole. Three stones were placed around the base of the post to stabilise it and the hole refilled with earth which was stamped down. These two posts were the only ones in the foundry to be sunk into post holes, other smaller support posts rested only on stones placed on the ground. Once the two main support posts were firmly sunk into the floor of the foundry a ladder was placed against each post and two men ascended each holding a rope to which one end of the cross-beam was attached. This was raised up and placed across the forks of the two main support posts.

The link between the productivity of the furnace, human fertility and the beneficence of spirit, NYWI, was given full expression in the ritual erection of the posts and crossbeam of the foundry. Throughout the work the

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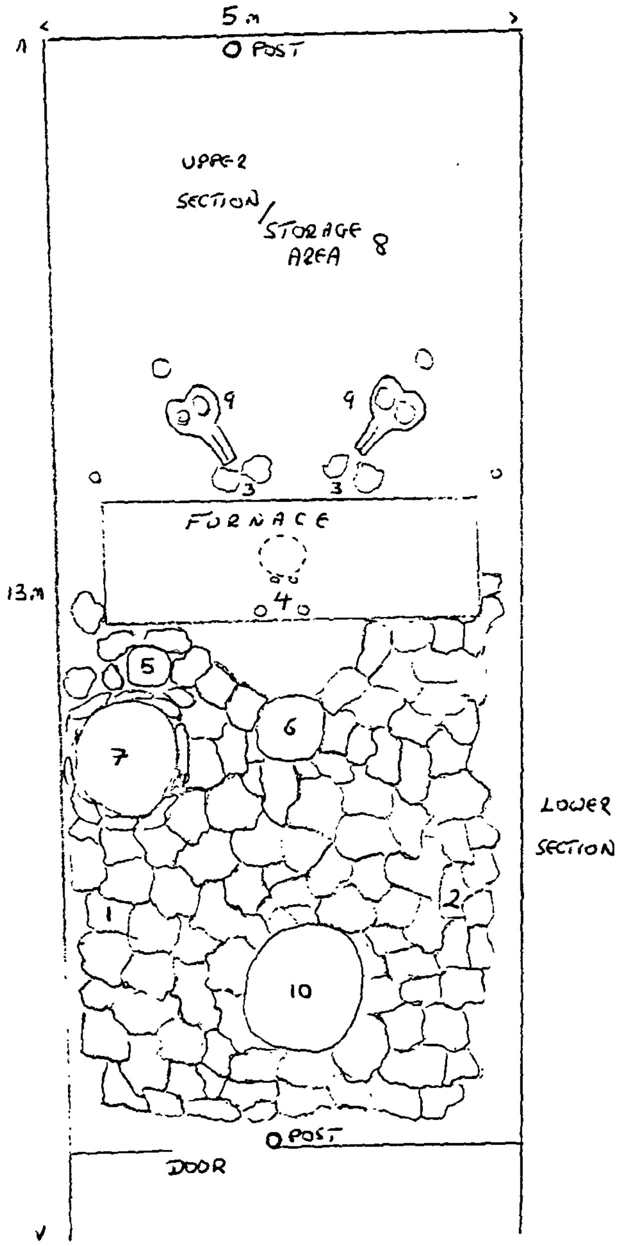
[*]. See Diagram 4 and BABUNGO Tool Inventory, following section.

Foundry Layout

Diagram 4

1. Ores placed here
2. Fuel placed here
3. Bellows support stones
4. Ores roasted here
5. Cavity for mixing clay and water
6. Stone anvil for removing bloom blocks
7. Stone anvil for crushing roasted ores
8. General area for storage
9. Twin bellows
10. Stone anvil for extracting fragments of bloom



1 cm = .8m

songs of praise to NYWI for the gift of twins would be chanted. This task was always performed on MBAA, the day commemorating the emergence of the founders of the chiefdom from the FOGHAI cave, and only those whose mother and mothers' mother were true born BABUNGO were permitted to be present.

The roof and gable walls of the foundry were formed by pinning and tying parallel and cross-lengths of bamboo. As in the construction of domestic dwellings these were prepared in sections on the ground and raised up and attached to the support posts and cross-beams. A loft platform was constructed by placing bamboo poles across the roof of the foundry, over which were laid raffia mats where fuels and tuyères could be stored and dried. The weight of this was further supported by pairs of small posts set at an angle into the floor of the foundry[10]. Finally, a large quantity of roofing grass was required for thatching the roof sections of the foundry, work done by specialists. This might be repaired, as needed, annually in the dry season.

The foundry was divided by the furnace into lower and upper sections. The lower section floor was paved with stones which served as a base for the pounding of clay for the furnace and tuyères and also facilitated the retrieval of fragments of iron scattered in the course of separating bloom from slag. Two stone anvils were located in the centre of this lower section, one (6) was used for cooling the block of slag and bloom, the second (10) for extracting and cleaning off the gangue from the bloom. Another stone anvil (7) was surrounded by a ring of smaller flat stones stood on their sides and plastered with mud to keep them in place. On this structure roasted ore was broken up with stone hammers prior to being placed in the furnace. Between this structure and the furnace was a cavity in the

[10]. This feature of the foundry was not described by informants but is visible in early photographs of both foundries and smithies in BABUNGO.

floor where clay and water were mixed for use in cooling the furnace after a smelt. Iron ores were placed on the south side of the foundry lower section, and charcoal and other fuels on the north side prior to being loaded into the furnace. The upper section of the foundry was unpaved and provided further storage space for input materials and also for the two people pumping the bellows at the rear of the furnace. Stones for paving the foundry floor and other structures were obtained from river beds within the confines of the chiefdom. The tool assembly of the BABUNGO foundry was less complex than that of the smithy since a narrower range of tasks was being performed in the foundry.

BABUNGO Foundry Inventory

ITEM	FUNCTION
NGHO-ITAA(6)[11]	Stone on which cake of bloom and slag left to cool, then broken open to remove central blocks of bloom.
NGHO-NTENG (10)	Very large stone anvil sunk into floor of foundry, characteristically pocked with small depressions. Blocks of slag beaten with rounded stone hammers to remove smaller occluded lumps of bloom.
NGHO-TEH (7)	Large flat stone anvil, surrounded by raised stones plastered in with mud. Used for crushing ores previously roasted over furnace vents.
NTEH-NAA (3)	Small stones supporting mouth of bellows.
WEHNGHO-NAA	Small round hammer stones used to beat slag on NGHO-NTENG.
WEHNGHO-TEH	Rectangular hammer stones for crushing ores on NGHO-TEH.
IBUU-SHOH (5)	Cavity in foundry floor where clay and water mixed for cooling dampening fire in hearth, and for cooling furnace.
NTUU-TEH	Undecorated carved large wooden scoop for loading ore into furnace.
GHENOE-BUU	Half calabash for carrying mud for cooling to furnace.
NTUU-TOEN	Clay water pot.
SHWII	Maize cob leaf water sprinkler for dampening fire.

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[11]. Figures refer to diagram of foundry in chapter on BABUNGO smelting.

ITEM	FUNCTION
NYOH-NAA	Old lengths of tuyère lined up vertically to block furnace mouth, packed in with wet clay.
WAI-BUU	Potsherds packed in between NYOH-NAA.
NSUNG	Rope of fresh vine used to drag out cake of slag and bloom.
KUNG	Bamboo frame on which WOENFIIBUU slept.

Labour Costs

It is clear that establishing a BABUNGO foundry was a long drawn out and costly business. Accurate estimates of labour costs are difficult to arrive at, given the fact that no foundries[12] were established under normal conditions in the lifetimes of informants. However, it was possible to gather accounts of different work carried out on various foundries. For instance, the complete rebuilding of an old furnace in foundry "A", or the reconstruction of foundry "B" after the original had been destroyed by fire, or the replacement of the "medicines" in the pit below the furnace of foundry "C" after a series of poor smelts. These accounts may be strung together to provide an overall picture of labour costs for establishing a new foundry.

The extraction and transportation of clay for the furnace entailed a labour input of 500-1000 man/labour hours. Up to 100 baskets of clay, each weighing c.30lbs, were gathered to form a huge heap that would be reduced by continuous alternate pounding and wetting to form the furnace clump c.12m^3 in volume. The collection of the clay was done by members of the descent group of the prospective TUNAA, who were not rewarded until the main feast for the establishment of the foundry.

Pounding the clay was considered especially arduous and particularly strong individuals were invited to perform this task and were then given their own special feast and a

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[12]. One foundry was established in the German colonial period. This proved to be an anomalous case where a specialist BANGOLAN trader, who had decided to settle permanently with his lineage in BABUNGO, exploited the loss of value of the cowry currency and paid for the labour of foundry construction in cowries. The building of the foundry alone, according to his "clerk", took some 1720 man/labour hours for which he paid a total of 20,000 cowries. He paid a further 9000 cowries for three men working over a period of seven days to gather the necessary medicines for the foundry.

payment of cowries. A group of 30-40 worked in shifts of 10 at a time over a period of up to 15 days alternately pounding and wetting the clay, leaving it overnight and starting again the next day. When the clay had reached the required consistency it was formed into small bricks which were handed to the furnace builders. Pounding the clay, alone, entailed some 1200 man/labours hours.

The actual furnace construction was done by specialists paid in cowries for their labours. This entailed up to 400 man/labour hours giving a total labour input of 2000-2500 man/labour hours[13] for the construction of the furnace. This figure does not include the labour costs of other necessary tasks, such as carrying the pounded clay to the builders, laying the foundation stones beneath the furnace, beating the furnace with sticks to remove air pockets, collecting and pounding another type of clay for the inner lining of the furnace, etc.

The work of foundry construction took place over the extended period during which the body of the furnace was left to dry. It entailed three main areas of work comprising the erection of support posts and central beam for the roof, collection of bamboo and construction of frames for the roof sections, and the gathering of roofing grass and thatching.

Cutting, carrying and preparation of the beams and their erection took c.350 man/labour hours. The men were either from the lineage of the TUNAA or neighbours. The two individuals who placed the central crossbeam were rewarded with 5 baskets of cooked fufu, 5 calabashes of raffia wine and a pot of cooked meat. All participating in the work were feasted with wine, fufu and goat meat.

Collection of bamboo for roof frames was done by the prospective TUNAA, his sons and those neighbours who

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[13]. This is considerably more than the 100 plus man labour days recorded by Greig (1937) for the construction of a Fipa smelting furnace where apparently no foundry building was constructed over the furnace.

expected to use the foundry once it was operative. Specialist frame builders could complete construction of these frames in c.140 man/labour hours and were unpaid but expected preferential treatment in being given use of the completed foundry. A TUNAA could do the work, himself, but over a longer period of time. An estimated c.330 man/labour hours were required for all work entailed in making and erecting these roof frames.

Gathering roofing grass was a collective effort involving the kin of the TUNAA, neighbours and other TUNAA. A large feast of raffia wine and boiled corn mixed with groundnuts and beans was given upon their return with the final batch of thatch. A huge quantity was required and 20 people might work over 5 days to collect it. At the turn of the century it was not the practice for individuals to do their own thatching which was done by specialists from KOM[14]. The work was paid for in cowries[15] and might entail c.175 man/labour hours.

The total labour input for the tasks described above relating to the construction of the foundry represents c.1700 man/labour hours. This brings the total estimated labour input for both furnace and foundry construction to a seemingly very high figure of c.4000 man/labour hours. This figure does not include other necessary tasks such as the collection, preparation and placing of the stone flooring, anvils and ore crushing structures, carving bellows and preparation of clay tuyères, etc., that would raise labour costs even further.

TUNAA status was highly prestigious and the work of smelting, as the labour of their ancestors, given high social esteem and so it is not unreasonable to expect a little exaggeration in labour costs claimed by informants.

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14. It is unclear for what period of time this might have been the case. However, BABUNGO informants stressed that groups from KOM were frequently resident in BABUNGO.

15. This was c.500 cowries apiece.

Yet what is more significant here is the <u>social value</u> of the work undertaken and <u>for whom</u> it is done. This is nothing to do with exaggerating "labour costs" since in all likelihood very large numbers were involved in pounding clay or fetching roofing grass although many will have been onlookers more interested in the food and wine provided. In BAMESSING in the late 1930s a house was built for Schmidt[14] and she recorded that the labour cost involved was a staggering 1688 man/labour hours. This was no European mansion but a slightly enhanced native dwelling. It did not take this amount of labour to build the house but her figure does represent the numbers present when the necessary tasks were performed. This affirmed both the esteem in which she was held and the prestige her presence conferred upon the chiefdom at a time when Europeans were thin on the ground. The work of foundry and furnace construction was carried out under similar conditions but with one major difference. Those contributing labour and enhancing the prestige of the occasion by their presence would expect to be rewarded by being granted access to the foundry, equipment, skills of the specialist smelter and the agency of the medicines of the TUNAA once the operation was up and running.

Nonetheless, even if allowances are made for these factors we are still left with an enormous investment of labour. In order to throw more light on this the nature and quality of the labour involved will be examined more closely.

Leaving aside the placing of "medicines" at the base of the shaft beneath the furnace, only two other tasks, namely the actual building up of the furnace and the thatching of the foundry roof, required the attention of specialists. All others might be undertaken by any able-bodied person. It may be assumed that a prospective TUNAA would have available to him a necessary minimum of human

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[14]. 1955.

resources, ie. wives to provide food for the workers and mature sons and other agnates to provide labour, to maintain the momentum of work. In this context, however, it is important to note a dominant theme emerging from the accounts of informants. This concerns the contribution of labour by non-kin from all parts of the chiefdom who freely offered their own labour in the certain knowledge that by so doing they would receive preferential treatment from the TUNAA when the time came for allocating days for non-TUNAA to work on their own behalf in the foundry. This applied most especially to those tedious and onerous tasks, such as the collection, transportation and preparation of kaolinite clay for the body of the furnace, where it was necessary to have a large number of people working together intensively at one point in time for the task to be effectively carried out. Other tasks such as putting together the bamboo framework for the foundry edifice might be done piecemeal by the prospective TUNAA and his sons during the long period that it took for the furnace to dry out.

Ritual and Ceremony

Once furnace and foundry were completely equipped it was the custom for the TUNAA to provide a feast for all who had contributed labour and for the TUNAA of all existing BABUNGO foundries to come and receive special gifts and payments and in return to offer their blessings for a productive foundry. This was also the occasion when medicines were placed in a shaft beneath the furnace.

The final celebration and feasting was a major item of expenditure for the new TUNAA. While it may be assumed that his wives were able to provide cooked food, it remained necessary to purchase large quantities of raffia wine, palm oil and meat, or slaughter his own goats, for the feast. Furthermore, the TUNAA of all the existing foundries would, in addition to participating in the general feasting, receive a payment of cowries, a calabash of raffia wine, some loaves of corn fufu and a large bundle of meat tied in plantain leaves to carry back to their own compounds. These gifts might be made at staggered intervals in the course of the building of the foundry. However, if c.60 TUNAA were operating foundries in at the turn of the century then the expenditure entailed in this would have been enormous.

Each TUNAA brought his own bag of medicines and took a handful and placed these together in a pile in the foundry. These were said to be numerous leaves from each type of tree and plant, including crops, gathered by the TUNAA. While the feasting was going on the various TUNAA were driven away from the foundry and a shaft was dug down through the base of the furnace to a depth of c.1.5m by specialists who prepared the herbal "medicines" on the central stone anvil. These were then placed in two pots[17] at the base of the shaft, which was then refilled by WOENFIIBUU, the celibate specialist in the foundry. The

[17]. Said to be ordinary domestic cooking pots.

"medicines" were considered essential for the successful production of large high quality blooms and once in place smelting might commence. The specialists placing these medicines received a payment of cowries in addition to being feasted and given food to take back to their compounds.

The various TUNAA only came together as a group on the occasion of the celebration of a new foundry or when a furnace had been repaired. In the latter instance they received smaller gifts of food and wine. They sat in a group set apart from those who had assisted in building the furnace and foundry, who were, in their turn, divided into groups according to the work they had done. The feast was shared out separately to the different groups with the TUNAA receiving the largest share. It was thought that the provision of this feast was a form of sacrifice that would make all those who had helped be content so that the operation of the foundry would be successful. There was no senior council of TUNAA, as there was for the smiths, all were considered equal as TUNAA. The descendant of YIGHAU was given nominal precedence since his paternal ancestor was accredited with introducing the developed furnace type. However, this was not formalised in any way and all TUNAA attendant at the ceremony received equal gifts.

Other medicines tied to the posts supporting the foundry roof and doorway were believed to guard against witches. However, it was believed that it was only through the efficacy of the medicines buried beneath the furnace that large quantities of good iron would be produced. They were thought of as an exhaustible substance and if the foundry became unproductive the pots of medicine were dug up and the herbal medicines replaced. It was not considered that the use of particular ores[18] or fuels or

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[18]. There was a belief, however, that the use of the two ore types was essential for the production of large quantities of bloom, but not all smelters are said to have followed this dictum.

the thermal capacity of the furnace had any direct effect on its productivity.

Smelting Process

In this section an assessment will be made of the labour productivity of a BABUNGO foundry. The smelting process employed will be described and the labour and material inputs in relation to outputs of bloom examined.

Material Inputs[19]

Fuels

Three types of fuel were used in the smelting process which commenced with the pre-heating of the furnace with a large bundle of burning elephant grass. This is normally only found within the confines of settlement areas where cultivation has been practised over extended periods and, hence, the collection of one large bundle represented a minimum of labour time. The two other fuels required comprised 10 baskets of dried wood chips and 4 baskets of charcoal made from the stems of the raffia palm. These two fuels were mixed on the foundry floor prior to being loaded into the furnace.

Six different species of trees were used for the wood chip fuel and this timber was mostly obtained within the chiefdom confines. At the approach of each rainy season smelters struck cuttings from these trees planting them in rows on compound land. If one had no mature timber available it was necessary to purchase a tree from a compound head and then fell it and invite co-smelters to help split it up. The tree was cut up while still wet with sharpened axes. According to Drummond-Hay[20], "They cut up very fine fuel for smelting, cut to the consistency of kindling, that resembles the chips that fly from an experienced woodsman's axe". In the dry season the wood chips were left to dry in the open. In the wet season wood chips were packed under the eaves of the smelter's dwelling

[19]. See map 11 for distribution of resources.

[20]1925.

or stored in the loft of the foundry to dry. Wood chips from different types of trees might be used for one smelt and these were mixed when dry. Each basket of wood chip fuel weighed a little less than 20lbs and one adult male was able to split sufficient wood chips to fill a basket in a day. As the trees were found mostly within the chiefdom[21] transportation costs were minimal so that c.10 man/labour days were necessary to provide the wood chip fuel for a single smelt.

Raffia stem charcoal was normally produced by sepcialists from the ward that lies adjacent to the raffia swamps. The thick base stems of tapped out palms were cut and piled into a heap and dry bamboo and elephant grass added and the pile set on fire. It was allowed to smoulder for some time before the charcoal maker quenched the fire with water. A specialist would get up to 3 baskets of this charcoal in a single day but an impecunious smelter might only get two baskets from a days work, should he attempt the work himself so that c.2 man/labour days were required to provide sufficient raffia stem charcoal for a single smelt.

That the bulk of the fuel used was not charcoal but finely cut and dried wood chips is striking. It appears to be a feature unique[22] to BABUNGO and, to date, no precise

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[21]. Rather surprisingly this does not appear to have noticeably diminished the tree cover of the chiefdom so that it stood out as any less forested than other Grassfield chiefdoms. In fact, the German geographer Hassert describes BABUNGO in 1908 as typically thickly wooded "das wie alle Siedlungen des Graslandes schon aus der Ferne an dem dichten dunklen Gehölz erkennbar war,..".

[22]. Jeffreys, 1942, does indicate that wood chips were used at WEH along with proper charcoal due to a shortage of the latter but gives no details as to relative volumes or whether this was a normal state of affairs. The closest analogy appears to be the use of logs of wood together with ordinary charcoal packed along with ore as a single charge into the tall cylindrical furnaces used for primary reduction with induced draught amongst the LUNGU of Zambia (Chaplin, 1961) and the NYIHA of Tanzania (Brock, 1965). (continued...)

parallels with other sub-Saharan smelters have been found in the literature. The use of wood chips may have led to lower temperatures being attained since the calorific output is approximately half that of charcoal[23] but the insulation afforded by the thick furnace walls may have compensated for any such deficiency. In any case maximum temperatures attained in the smelt are not necessarily an indication of efficiency as the point of the exercise was to reduce the iron ore and not melt it and so produce cast iron[24] difficult for the smiths to to work. Furthermore, recent work[25] has demonstrated that furnace temperature was not necessarily a critical factor in the development of iron smelting.

The practice of annually striking wood cuttings, on compound land within the chiefdom, to provide a future source of fuel for smelting also appears to be unique to the region.[26] Similarly, the use of charcoal derived from

the stems of raffia palms has no clear parallels elsewhere. This represents an extraordinary measure of conservation in so far as the raffia exploited in this way are those whose productive potential for wine-tapping and fibre has been

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[22](...continued)
Wood chips were used by the smelters of Southern Mbeere (Brown, 1971) but only as a single layer the bulk of fuel being charcoal proper.

[23]. Fluzin, in Eckard, 1993.

[24]. Sassoon, 1963.

[25]. "A simple charcoal furnace 30cm in diameter with a single tuyère easily powered by one man can reach 1,600c in temperature and smelt iron ore to molten cast iron. The production of bloomery iron actually requires a decrease in furnace temperature", Rehder, 1986.

[26]. In KOM trees for firewood were planted as cuttings on the farms and might be cut after only two years when c.10ft high and some 3-4in in diameter (Kaberry, fieldnotes). These were probably <u>Adenocarpus mannii</u>, a nitrogen fixer and claimed locally to improve the soil. The type grown in OKU and similarly used is <u>Sebania aegyptiaca</u>. The stools were left in the ground after the wood was cut.

old palms for charcoal would have promoted conditions for the regeneration of the tracts of raffia.

The cutting up of wood chips to the consistency described above was the single most labour intensive part of the work of iron smelting. The production of ordinary charcoal would, other things being equal, have represented a considerable saving in labour costs. Normal charcoal production was done by those providing fuel for the smiths of the chiefdom and their wide range of operations was such as to bring them, on occasions, into conflict with elements from NSO.

This state of affairs clearly represents a response to the problems inherent in the location of a highly intensive and sedentary iron working industry in a grasslands[27] environment. It also points to a significant adjustment of what would otherwise be a highly competitive, and potentially conflictual, relationship between the smiths and smelters of the chiefdom for the scarce resource of wood for charcoal making. The impact elsewhere of charcoal extraction for African iron production and its effect on the environment and the limitations set on these industries

[27]. The antiquity of the deforestation of the Grassfields and the relationship between this and the exploitation of wood for the iron industries of the region remains unclear. Letouzy (1958) and Hawkins and Brunt (1965) consider that the grasslands of the high lava plateau are derived from moist montane forests and that the tree and shrub savanna of the Ndop plain, and similar areas, derive from moist evergreen forest but give no indication as the antiquity of these landscapes. However, Morin, cited by Warnier (1985, unpublished) states that "les rankers d'altitude sont le support d'une prairie naturelle depuis 20 ou 25,000 ans". The analysis of charcoal from early Iron Age sites in the region would not only date these industries but also provide data on the nature of the flora from which the charcoal derived. Such analysis would provide data on the original environment at the point that iron working began in the area and also, conceivably, the progressive effects of these industries on the environment, in loss of upland tree cover and increased sedimentation in the plain and the response of the smelters to this change over time in selecting new trees and materials as sources of fuel.

the environment and the limitations set on these industries by the finite nature of these resources has been cited[28] as a major factor in the perceived decline in production in opposition to the effects of the importation of European iron. Without entering into this debate it seems clear from the BABUNGO case that in a situation of high demand these industries were able to innovate both in terms of furnace structure and the nature of fuel inputs in order to overcome these potential constraints.

It is important to note that the decline of large scale iron production elsewhere in the Grassfields can not easily be linked to fuel shortages[29] in so far as the major centre of small scale production recycling slag from more ancient industries, OKU, is located in the vicinity of the densest remaining stands of montane forest.

Ore

Four baskets of ore, each weighing c.30lb, were reduced in a single smelt. These ores were dug from two main areas in the surrounding hills, both within a 1-2 hour trek from the centre of settlement. Unlike the kaolinite, this ore was not mined but only dug out from shallow depressions or small pits on the surface. Dust and soil were cleaned away on the spot. In the foundry the ores were first roasted over the top vents of the lit furnace then placed on a stone anvil and broken up with stone hammers into pieces the size of an uncracked peanut ready to be loaded into the furnace[30]. Informants stressed that

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28. Goucher, 1981

29. BAFANJI informants claimed that there were no shortages of fuel (Warnier, fieldnotes).

30. This process of roasting and crushing may have served to reduce the silicate content of the original ore and so increase the return of iron if, after crushing, the silicate residue was discarded. The analysis reported by Guillemain, 1908, of an ore that he claims was "wie es bei meiner Anwesenheit in BABUNGO geschmolzen wurde", giving a (continued...)

it was necessary to collect ores from each of the two main source ares and mix them up in order to have a most successful smelt. It is probable that BABUNGO smelters used a mix of limonite and haematite ores[31]. The two ore types were characterised as male and female[32] and were mixed together before being loaded into the furnace. One adult male was able to gather 2 baskets of ore and carry it back to the compound in a single day and so 2 man/labour days were required to provide sufficient ores for one smelt.

Finally, it was necessary to provide 2 clay tuyères, each c.1m in length, for every smelt. Two types of clay were used, kaolinite and also a clay dug from the sides of river banks and normally used for making domestic pots. The clays were brought to the foundry, mixed and pounded with heavy wooden pestles on the stone-paved floor. A lump of clay, the size of a man's head was taken and moulded around a length of bamboo to form the basic shape. The bamboo was eased out of the tuyère by wetting and twisting. The tuyère was then placed on a bed of plantain suckers and

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[30](...continued) composition of 56.27% SiO2 and Fe 20.72% rather than indicating use of a low quality ore almost certainly represents the tailings or rejected ore and may, in fact, indicate an awareness on the part of the smelters of the deleterious nature of the quartz content of ores.

[31]. Engineer, 1941, indicates a red haematite was used. More recent analysis of slag from the various smelting sites in and around the Ndop plain indicates a general consistency in the chemical composition of this slag and the use of high quality Goethite ore (see S.K. Zacharias, "Analysis of Iron Smelting Remains from the Ndop plain Area of the Western Cameroons : Preliminary Report". Unpublished, 1979.). The use of two ore types, limonite and magnetite, by Dimi smelters is recorded by Todd and Charles (1978).

[32]. Genderisation of non fuel inputs was a feature of the "Glazed Sherds" industry close by in the north west of the Grassfields (Warnier and Rowlands, 1988) and also further afield amongst the Jur of the Sudan (Crawhall, 1933).

the wide bellows mouth formed and then left to dry in the sun. Informants stated that a group of c.5 men might go and dig and carry clay on one day and then pound it and form the tuyères the next. They would make c.30 tuyères over the two day period, ie. 1 man/labour day to produce c.3 tuyères.

In this case it was possible to test the accuracy of informants claims since tuyères are still made in BABUNGO today by local smiths and this was observed and recorded. On one occasion 2 smiths left their compound at 6 a.m. and returned two hours later with two baskets each half filled with clay. By 10 a.m. the same morning 2 full length tuyères had been completed and a large block of unformed clay remained. Accordingly, 1 man/labour day to produce 2-3 tuyères is a reasonably accurate statement of labour costs.

From these figures it appears that a minimum of 15 man/labour days were required to provide the necessary materials for a single smelt. To this figure must be added the labour cost of the actual smelting process.

The Smelt

Once the requisite material inputs were packed in the foundry and the necessary repairs made to the interior furnace lining the smelt might commence.

A large bundle of dried elephant grass stalks was taken and broken into four pieces and inserted into each of the four major openings of the furnace and lit with tinder. This fire was allowed to burn until the interior of the furnace began to glow with heat. At this point the two tuyères were placed in their respective channels with their tips close to the centre of the hearth and packed firmly in with wet clay.

The two sets of twin bellows were then lined up behind the tuyères and two men would begin to pump them slowly. One load of mixed fuel was fed through the chimney and the bellows pumped until the tips of the tuyères became red hot. Another load of mixed fuel was added and one load of ore which had been previously roasted during the preheating of the furnace. When the fire was well established, the front opening at the base of the furnace was sealed with lengths of old tuyères packed in with wet clay. From this point until the end of the smelt single loads of ore and mixed fuel were fed continuously into the furnace. When one load of ore was seen to sink from view into the burning mass in the hearth then another would be fed in through the chimney.

A smelt usually commenced two to three hours after sunrise and lasted from 12 to 14 hours. The bellows were pumped continuously throughout this period and from time to time a stick pushed down each tuyère to clear any blockage of slag. The tip of the tuyère, close to the centre of the hearth, tended to slag off[33] in the intense heat so that a tuyère, over 1m long at the start of the smelt, was progressively used up until slightly less than half the original length remained. When this point was reached the smelt was usually terminated.

Another indication that the smelt was complete occurred when liquid slag began to seep through small holes left for this purpose in the tuyère and clay seal of the furnace mouth[34]. When this happened a stick was used to form a wider outlet through which the liquid slag seeped into a small depression immediately in front of the fu rnace. This was done to prevent too large a block of slag and bloom being produced and necessitating the arched opening to be broken in order to remove the block.

At this point no further fuel or ore was loaded into the furnace and pumping the bellows ceased. The remaining tuyère lengths were removed for reuse in blocking the furnace mouth in the next smelt. The furnace was left to cool till dawn when the workers returned to unblock the furnace mouth and dig away ash and other debris from around the block of slag and bloom. Wet mud prepared in a depression in the foundry floor was taken in a calabash and thrown onto the block to cool it further.

A rope, freshly cut from a climbing vine, was placed around the hot but solid cake of slag and bloom which was then dragged out through the furnace mouth and placed on a stone anvil and allowed to cool further. Meanwhile, a maize-cob leaf water sprinkler was used to cool down the

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[33]. Analysis of the chemical composition of samples of bloom from the developed BABUNGO furnace showed a very high Al_2O_3 content (28.5%), slag averaged 10-15% (See S.K.Zacharias, above). This was probably due to melting of tuyères in the hearth.

[34]. Vollbehr, 1912. Informants seemed to indicate that bubbling noises occurred shortly before this point was reached suggesting a carbon boil might be taking place. This might only be substantiated through an experimental reconstruction of the BABUNGO smelting process.

interior of the furnace so that any damage done to the interior lining, when removing the block of slag and bloom, could be repaired with fresh plaster[35].

The cooled block was then broke up with a heavy stone hammer and the bloom extracted. A successful smelt would yield 2 large lumps of bloom, each c.15cm. in diameter and c.40cm. in length. Smaller pockets of bloom were found encased in slag close to the main blocks of bloom. These were transferred to a second stone anvil (10), whose surface tended to become pitted with saucer shaped depressions. Lumps of slag encasing bloom were placed in circlets of grass in these depressions and cracked open with small stone hammers. Finally, the valueless slag was placed in baskets and carried to the nearby slag heap and dumped on top, and the foundry floor swept clean in preparation for the next smelt.

It was estimated that 15 man/labour days were required to provide the materials for the smelting operation. In order to gauge the productivity of BABUNGO production it is necessary to add to this figure the labour required for the smelting process. Throughout the course of a single smelt two men would pump the bellows continuously while it was the task of a third to load in fuel and ores from time to time, and also to roast the ores load by load as the smelt progressed. The duration of a smelt was approximately 12 hours. Accordingly, a minimum of 4-5 man/labour days were required for the smelting process. This indicates a total labour investment of c.20 man/labour days.

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[35]. Malcom (1924) mentions that at this stage in a BAGHAM foundry "the fire-bed is well beaten with a wooden mallet", it is likely the base of the BABUNGO furnace hearth was similarly consolidated.

Output

It was claimed by informants that a successful smelt yielded two blocks of bloom each c.15cm in diameter and c.40cm in length. Jeffreys (1942) recorded the average weight of one bloom at c.40lb of unshingled iron. This figure may represent a slight underestimate of the total weight of bloom recovered since his data do not include bloom extracted from slag that had been located close to the main blocks of bloom. This was extracted by youths who had contributed labour to the smelt and was the only remuneration they received. Further, there was a general tendency for smelters to minimise claims to quantities of bloom produced since large blocks of bloom could not be sold openly as the retainers of the FON were entitled to seize them on his behalf as "KOHNYWI" or "the gift of spirit". The large blocks had to be broken up or sold privately.

Taking these factors into account suggests that the average output of unshingled bloom was 80-90lb. However, up to half or more of this was lost in the process of shingling the bloom in the smithy. There was general agreement among both smelting and smithing informants that the volume of forgeable iron that remained was sufficient to produce six large SOVOENGO hoes. Three smiths worked for one day to produce one hoe of this type. This gives a total of 6.5 man/labour days for the entire labour input entailed in the manufacture of a single hoe. This figure will be used to make some general comparisons with other iron technologies operative in the Grassfields region so that an understanding of the relative labour productivity of BABUNGO production may be reached.

Organisation of Work

Foundry Personnel

There were five categories of personnel in the foundry comprising TUNAA, "father of the foundry", NSHUUNAA, "mother of the foundry", VANGNAA, "children of the foundry", WOENFIIBUU, the foundry operator, and WOEMOETESSOE, the individual loading the ores and fuel into the furnace.

The NSHUUNAA did not enter the foundry. The title was given by the TUNAA to a wife or daughter and a small portion of bloom produced in each smelt was set aside for her and placed in a special basket in the foundry. When full it was given to the woman who would send it to be sold in the market and use the cowries to buy palm oil or salt.

TUNAA

The TUNAA was the owner of the foundry but any individual who had arranged to occupy and work in the foundry on a particular day would be considered as TUNAA for that day. One became TUNAA, proper, either by establishing a foundry or through succession to a descent group headship in which ownership of a foundry was vested. Succession also entailed acquisition of the knowledge of the various medicines kept in the foundry to ensure its successful operation. If problems arose, such as a repeated failure of the smelt, it was the responsibility of the TUNAA to prepare herbal medicines to use to "bless" the foundry and its personnel. Also, if a foundry worker took a new wife the TUNAA had to prepare medicines to "wash"[36] the man and his new spouse. Apart from the TUNAA, no other person involved in the foundry required any knowledge whatsoever of the collection, preparation and use of the medicines associated with smelting.

With the exception of certain sacred occasions, such as the mortuary rites following the death of the FON when all work was forbidden, each foundry might in theory be in use every day of the eight day week. Three of these days were customarily set aside for the TUNAA to use the foundry

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[36] In fact, the "medicine" was consumed orally. However, Malcom (1924) describes a ritual washing that must be performed before a stranger might enter a BAGHAM foundry: -

> "A liquid in which the leaves of a plant (M-VUN) are infused is kept in a calabash just inside the hut. As the visitor enters he is sprinkled with it by means of a whisk made of leaves and twigs. A fowl must then be presented to the head workman. Its legs are tied with a creeper (YAYAP) and, holding it in his left hand, the visitor is led to the furnace (M-BU). The fowls throat is cut and as the blood is flowing it is sprinkled over the top of the furnace. Each person in the hut is then given a piece of roasted plantain, which is eaten at once. The non-compliance with this ceremony would cause the charge in the furnace to be a failure. The flesh of the fowl is cooked and eaten later on by all the iron-smelters."

to produce iron on his own behalf. Each of these days was followed by one of the three weekly markets. This enabled the TUNAA to take and sell his bloom bright and fresh from the furnace and sell it at a good price in the market. The bloom is said to have lost its sheen and become less attractive if stored, possibly due to surface oxidization.

The remaining five days were given over to anyone who, having gathered together the necessary materials, had requested from the TUNAA the use of the foundry for a days work. A TUNAA most freely offered the use of the foundry to individuals who had previously rendered him assistance. Those who had helped in construction of the foundry and furnace were given priority in access to the foundry. Assisting in the preparation of material inputs or pumping bellows in connection with the TUNAA's own work in the foundry were other means of gaining access. An individual who had rendered such assistance always received preference when it came to allocating access[37] to the foundry. The TUNAA took no part in the work in the foundry on the days set aside for the use of others.

The recompense the TUNAA received for loaning out the use of his foundry took a number of forms. In addition to the gift of bloom to the NSHUUNAA, the TUNAA received a portion of the bloom in his own right. In place of this he might be offered two baskets of ore in return for the use of the foundry. The only exception to this concerned an individual whose wife was pregnant and close to delivery. Such a man could not be refused use of the foundry and was under no obligation to offer a gift or make any payment to the TUNAA. This reflects the ethos of cooperation and sharing that enshrouded the entire process of smelting and which was related to the underlying conceptual context of

[37]. The allocation of access to the foundry and the connotations of debt that this entailed was incorporated into a notion of personal power so that an elderly or infirm TUNAA might delegate the function of "DIU-NAA", or giving out the use of the foundry to a trusted friend or kin.

bloom production that centred on the use of medicines to attract the blessing or fecundity of NYWI.

In addition to bloom and ore the TUNAA also received a quantity of charcoal recovered by the WOENFIIBUU from the interior of the furnace at the end of each smelt and placed in a special basket kept in the foundry for that purpose. It was claimed by informants that a TUNAA would seldom need to purchase the usual raffia charcoal but would instead use this recovered charcoal along with the normal quantity of dried wood chips.

A TUNAA enjoyed a very advantageous and lucrative position in this industry. His own direct labour costs were minimal. The number of people wishing to engage in smelting was always greater than the number of available foundries. It was necessary for those seeking use of a foundry to establish relations of reciprocity with a TUNAA by assisting him in the intensive labour tasks of fuel preparation and bellows pumping in return for access to foundry equipment. Giving out the use of his foundry in this way cost the TUNAA nothing. An individual coming in to use the foundry would, in addition to supplying his own fuel and ore, supply his own sets of twin bellows and skins, two tuyères, and also clay for retouching the furnace lining and for use in blocking the base opening of the furnace during the smelt. He would also have to purchase wine and meat, and have his wife prepare corn fufu and cook the meat, to feed those assisting him in the foundry.

It was not necessary for an individual seeking use of a foundry to be linked to the TUNAA by ties of descent or marriage. The foundry was considered as a place where any member of the chiefdom could come and work. In return for this access men were obliged to contribute labour for the maintenance of the foundry and, also, to assist the TUNAA in his own work. Some foundries gained a reputation for being highly productive and it was considered that the medicines of the TUNAA concerned were especially effective and access to the use of such a foundry became keenly sought after, to the further advantage of the TUNAA. This was true to such a degree that a TUNAA, whose foundry was not doing particularly well, might go and ask to have the use of another TUNAA's more productive foundry. Informants likened the position of the TUNAA of a successful foundry to that of a FON. He needed only to sit in his compound and become rich from the gifts bestowed upon him in return for his favours, or, in this case, access to the use of his foundry. A TUNAA was also likely to hold senior political rank, a function, perhaps, of the wealth derived from his occupational status but also linked closely to parallel notions concerning transformations centred on NYWI, spirit, and the production of bloom and also the fecundity of the land and people of the chiefdom.

WOENFIIBUU

The sons and male slaves of a TUNAA normally worked in the foundry as VANGNAA. Over a period of years they would observe the work closely and when one was considered sufficiently knowledgeable he might be appointed as WOENFIIBUU. It was also possible for a male, neither a slave nor related to the TUNAA, but physically able and well-versed in the work, to be given this role. A reconstruction of the labour force of 13 foundries for the first decade of the present century gave the following breakdown:-

Table 6 WOENFIIBUU (total 13)

Sons of TUNAA	Non Kin	Slaves[38]
2	6	5

The TUNAA employed the WOENFIIBUU as his permanent representative in the foundry. He was a celibate specialist in smelting, who remained working and sleeping in the foundry for a period from 4 to 6 months. He did not leave the foundry in this period. Daily, he assisted and supervised the work in the foundry, both for the TUNAA and others using the facilities. The permanent, extended and celibate residency of the WOENFIIBUU in the foundry is closely linked to the very strong prohibitions on sexual intercourse by foundry workers on the eve of the day of a smelt.

It was the duty of the WOENFIIBUU to deal with all the tasks relating to the interior of the furnace, including all repairs to the furnace lining, lighting the fire, inserting tuyères and packing them in with clay, and

[38]. It is possible that the non-kin element in this table actually represents slaves whose status has been concealed. Some genealogical data, representing a completely inadequate sample, suggest as much as 20% of the male labour force in some smithing and smelting compounds were bought slaves (see below, on trade and slave imports).

blocking up the furnace mouth[37]. He also supervised the roasting and charging of fuel and ore, unblocked the furnace mouth at the end of the smelt, took wet clay and water to cool the furnace interior, and, finally, dug out the ashes from around the cake of slag and bloom, and placed a rope around the cake to be dragged out through the furnace mouth.

WOENFIIBUU managed the operation of the foundry and it was his responsibility to ensure that no damage was caused. For instance, it was possible for an over eager smelter to feed in too large a charge of ore and fuel so that the cake of slag and bloom produced was larger than the furnace mouth. In such a case the mouth would have to be widened in order to remove the cake and, in so doing, cause considerable damage to the furnace structure. It was, in fact, unnecessary for someone coming to use the foundry to have any more knowledge of smelting than was required simply for the collection of ore and fuel. An individual ignorant of the process would only have to follow the instructions of the WOENFIIBUU. At the end of every smelt, the person, on whose behalf the work had been done, was obliged to give a portion of the bloom to the WOENFIIBUU. In the event that the smelt was a total failure WOENFIIBUU would still receive a payment of some kind. Smiths visited foundries to purchase the bloom that a WOENFIIBUU had collected in this way.

The work of WOENFIIBUU was hard and laborious. He slept on a bamboo frame on the floor and was permanently covered with the grime from the smelt. It was claimed that the hardship of his situation was mitigated by the kindly

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[37]. Wherever furnaces set into a bank of earth or clay were used with a forced draft, provided from the back of the furnace it appears to have been the practice to block the mouth of the furnace with old sections of used tuyères. Sassoon (1964) describes this for the Sukur of northern Nigeria, "this opening is then closed with several old tuyère pipes placed horizontally and secured in position with a rock: any remaining gaps are filled in with bits of rock and broken pipe."

treatment offered by his TUNAA. It was necessary for the TUNAA to pamper him, coming each day to the foundry to greet and encourage him, and sending wine and cooked food daily to keep him content. In reality it was common for a WOENFIIBUU to run away to escape these harsh conditions of constant grime, enforced celibacy, isolation and confinement that the role imposed upon him.

When WOENFIIBUU was the son or slave of the TUNAA he was obliged to hand over the bulk of revenues received from the sale of bloom. The father, or TUNAA, in his turn, was under an obligation to find and make bridewealth payments for a wife for the WOENFIIBUU. Accordingly, a son or slave, who worked as WOENFIIBUU for an extended period, or after a series of stints, eventually gave up the work and took a wife provided for him by his father, the TUNAA. A WOENFIIBUU who was not kin to his TUNAA would both retain his revenues from the sale of bloom and, in addition, receive extra gifts and solicitations from the TUNAA, but did not receive a wife upon termination of the work.

VANGNAA and WOEMOETESSOE

WOENFIIBUU also supervised the work of the VANGNAA, the "children of the foundry", whose task it was to sweep out the foundry and carry away debris at the end of a smelt. They were also sent to carry fuel stored away from the foundry, and accompanied the TUNAA to dig and carry back the ore. They might also be sent to collect clay for retouching the furnace lining and cooling the hearth after firing. They also went, along with others, to cut roofing grass for the annual thatching of the foundry.

There might be from 3 to 5 VANGNAA in the foundry at any one time. The VANGNAA were not necessarily only sons of the TUNAA but might be any small children or youths sent by their fathers to work and stay in the foundry for two or three days. There was no formal organization or recruitment of the VANGNAA, nor strictly speaking, were they apprentices. Any child or youth, even a female child prior to the onset of menstruation, could come along and help. A TUNAA would, quite naturally, make a point of sending his own sons but it was a rule that no youth could be refused permission to come into the foundry to work. The VANGNAA were given food by whoever was operating the foundry. They also had the right to collect any fragments of bloom found on the foundry floor and to extract bloom from discarded slag, this belonged to the father of the young person sent to work as VANGNAA.

For each smelt one VANGNAA was selected as WOEMOETESSOE and it was his task to watch the fire and top up the furnace with charges of fuel and ore as the smelt progressed. In return for these duties the WOEMOETESSOE would receive a small lump of bloom from the foundry operator. Over a period of time each of the VANGNAA would be given the opportunity to take on this role. However, only an older youth, who had been sent to work continuously in the foundry over a period of years, might, upon maturity, be appointed WOENFIIBUU.

In addition to WOENFIIBUU, the VANGNAA and the TUNAA for the day, any man passing the foundry might enter and lend a hand pumping the bellows or some other task. He received no recompense but, when his own turn came for operating a foundry, those that he had helped, in this way, would, in turn, help him.

Labour Costs

In light of the above it is necessary to qualify the estimates of labour costs. The contributions of the VANGNAA, and other casual helpers, in the preparation of materials and smelting process were not included. Their contributions, however, do not represent additional costs to the actual or operative TUNAA but rather a reduction in those costs. The VANGNAA, for instance, after fetching and carrying materials and assisting in the smelting process were not rewarded by the TUNAA. Once the bloom had been extracted and removed the VANGNAA were left to shift for themselves. They swept the foundry floor and gathered together any fragments of bloom they might find. They also used small stone hammers to crack open lumps of discarded slag seeking stray pieces of enclosed bloom. Hence, the VANGNAA, represented a virtually cost free labour resource to the TUNAA, apart from the little food he might provide for them. This applied equally to the actual TUNAA and also to the operative TUNAA.

In the case of a TUNAA whose foundry had gained a reputation for highly successful smelts, overall labour costs are likely to have been minimal. The bulk of these costs might be borne by those wishing to ingratiate themselves with the TUNAA, through providing labour for the preparation of materials for the smelt and also in the actual smelting process, in order to gain access to the foundry facilities.

TUNAA and non-TUNAA

Relations between TUNAA and non-TUNAA smelters constitute a client system independent of lineage and kin groups that is focused on the individual TUNAA and the foundry, ie. his monopoly of the means of production. The actual TUNAA grants access to technical equipment and skills, ie. WOENFIIBUU's stewardship of the smelting process, in return for labour and materials contributed at an earlier point in time. Effectively, this represents scarcely any cost, at all, to the TUNAA since, given the high labour costs of smelting, he is granting access to capital equipment, that would otherwise lie unused for periods of time, spent gathering together the necessary material inputs for his next smelt.

In contrast an individual who is obliged to offer his own labour in return for access to a foundry, must enter into relations of cooperation and mutual assistance with those in the same situation in order to be able to gather together the necessary material inputs. While these individuals might benefit to an extent from the labour of the VANGNAA they must still meet the very high labour and material costs associated with the smelting process. They are obliged to enter into relationships that may be characterised as relations of symmetrical reciprocity between equals, who must form themselves into cooperative working parties in order to overcome the problems of amassing the heavy labour and material inputs required.

The most active participants in such work groups would have been junior dependent males seeking the means to satisfy the demands for bridewealth payments and the heavy gifts following childbirth. Informants who had participated in iron smelting likened this form of organization of labour to that of a SHWAA, a rotating subscription association. In these associations a set membership met weekly and made fixed contributions of cowries that were given in turn to each member and generally used either for bridewealth payments or for external trade expeditions. Work groups of non-TUNAA were not so formally organised but the principle was basically similar in that an ethos of cooperation and sharing provided a context of socially controlled and directed wealth accumulation.

In such a system everyone gains but the TUNAA gains most for the least outlay. It may be described in terms of a class distinction between TUNAA and non-TUNAA in that the various TUNAA own the means of production, ie. the foundry, furnace and facilities, and extract surplus value in the form of "rents", rendered largely as labour, from the non-TUNAA. The conflictual element inherent in such a relationship would normally find expression in notions of witchcraft or sorcery that serve to provide an explanatory mechanism for the wealth of one in terms of the mystical impoverishment of the other. The pervasive ethos of cooperation and sharing that emerges from informants' accounts provides the counterbalance for this element of potential conflict.

The Conceptual Framework of Smelting

Medicines

The knowledge and use of the medicines believed instrumental in acquiring the blessing of NYWI for successful smelting were the exclusive property of the TUNAA and were handed down from father to son upon succession. One effect of this exclusive possession of the secrets of smelting medicines was to take out of the day to day work situation the task of having to deal with them.

The medicines were thought of as an exhaustible substance that might have to be replaced from time to time. In practice this meant that if there were a repeated failure to produce good sized blooms the situation would be rationalised in terms of the exhaustion of the medicines. At this point the pot containing them would be exhumed and found to contain compost, since the plant material would, quite naturally, have decomposed. Fresh medicines were then placed in the pot, which was reburied beneath the furnace, and smelting recommenced. Normally, this was done very rarely and a furnace would be in operation for many years before it was considered necessary to deal with the medicines in any way at all. It seems likely that this state of affairs may have given BABUNGO smelters some advantage over those others[40] obliged to use medicines in the various stages of the smelting process each and every time the operation was carried out.

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[40]. See especially the account given by Brelsford (1949) of the rituals and medicines employed by CHISHINGA iron workers. Also compare the heavily ritualised preparation of tuyères described by Barnes (1926) for the BA-USHI with the description given above of the mundane process of tuyère manufacture in BABUNGO.

Sexual Prohibitions

In broad terms, in African metallurgy, sexual prohibitions may apply to few or all of the stages in the process of production, to few or all of the individuals involved in the work and those connected with them, and may be of short or extended duration. In the case of BABUNGO these prohibitions relate principally to the furnace and material inputs and all who come into contact with them. Sexual prohibitions centred on the separation of any male who had recently had intercourse and any post-pubescent female from the smelting furnace and all the materials that were fed into it in a smelt. For instance, a number of precautions had to be taken regarding fuel inputs. An individual splitting wood chips was forbidden to touch a woman and then touch the wood chips again. A man who had recently had intercourse should not walk through the split wood chips laid out on the ground to dry. A wine-tapper entering the raffia bush would, if he had recently had intercourse, have to go back and enter by a different path should he see someone preparing the raffia stem charcoal. The belief was that if these precautions were flouted the medicines buried beneath the furnace would cause the fuel not to burn. Similarly, ore stored in the compound could not be touched by anyone who had recently had intercourse or the smelt would fail.

All working in the foundry had to refrain from sexual intercourse on the day before work. If this prohibition were ignored the fire in the furnace would simply die away or some other mishap occur. A foundry worker who took a new wife had to be purified, along with the spouse, by means of medicines administered by the TUNAA. A man who had borrowed the use of the foundry was forbidden to touch the furnace interior. No mature female was permitted entry to the foundry.

In fact, the only person permitted to touch the inside of the furnace was WOENFIIBUU. His celibacy, vouchsafed by his permanent residency in the foundry, served to ensure the success of the operation by minimising the possibilities of contamination of the furnace through contact occurring with someone who had recently had intercourse. It is where the danger of pollution is greatest, in the context of physical contact with the furnace in the course of the smelting process, that these prohibitions are condensed in the role of the WOENFIIBUU. He, alone, takes charge of all the operations involving physical contact with the furnace and he, alone, resides permanently in the foundry in a state of celibacy. It is in this light that the combination of extended celibacy and exclusive specialist encapsulation of the knowledge and skills associated with smelting in the role of WOENFIIBUU should be viewed. This role, assumed by one individual over an extended period of time, appears to be unique among African iron smelters.

Linked to this celibacy and exclusion of mature females from the foundry is the notion that smelting is set in a procreational paradigm[41] which is given its most explicit expression among the CHISHINGA iron workers of Zambia:-

> "The Headman Kapambwe explained very vividly the reason for the sexual restriction. The furnace, he said, was regarded as the smelter's wife for the period of the work and to sleep with his human wife meant that he was committing adultery as far as the furnace was concerned. Moreover the furnace was pregnant with iron, she was a wife with "great riches in her womb", and to commit adultery while the wife is pregnant means, among other tribes beside the Chishinga, that the child will die, and so by analogy the furnace would not produce good iron."[42]

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41. Herbert, 1988.

42. Brelsford, 1949.

However, the procreational aspect may represent only part of a wider system of beliefs about transformation and fecundity in both production and reproduction. Grassfield concepts focus on two parallel sets of relationships:-

Mother/Wife	Organ of Sorcery	Child
Furnace	Medicines	Bloom

A female witch will not bear children because her sorcery will consume them in her womb. There is a related notion that infidelity by the husband during the pregnancy of his wife also threatens the foetus in her womb. It is as though contact between the sorcery substance of the wife with that of another mature female brought about by the adultery of the husband threatens the pregnancy. Similarly, the smelting medicines that activate the blessing of NYWI that fecundates the bloom are also the agency that causes the smelt to fail if the sexual proscriptions associated with iron smelting are flouted.

The smelter may be seen to be in a relationship with the furnace that parallels that between a husband and his pregnant wife. In both there are associated dangers mediated trough the agency of the medicines-sorcery of the furnace-wife. The avoidance of sexual intercourse prior to smelting goes along with a separation of any mature woman and any recently sexually active male from all the material inputs of the smelt. Hence, these sexual restrictions do not simply reflect the dangers inherent in committing adultery against the furnace-wife but a wider separation of the medicines that promote fecund transformation of ore to bloom from the sorcery substance of a mature sexually active woman. These two elements juxtaposed in time and space threaten the success of the smelt just as adultery by the male implies dangerous contact between the sorcery substances of two mature women that would threaten the pregnancy of the wife.

The burial of medicines at the base of the smelting furnace is a common feature of sub-Saharan smelting practices[43]. It seems plausible to suggest that this represents a general notion of a mystical substance, or fecundating agency, that facilitates the transformation of ore to bloom. This transformation closely parallels that of human reproduction so that whatever endangers the latter also endangers the smelting operation and the two phenomenon, transformation and reproduction, must themselves be kept apart[44].

At a more general level it may be that iron and those who produce it are considered dangerous not because iron is a mongrel substance that straddles the separate domains of "nature" and "culture" but rather because its very production has to do with mystical transformations and sorcery. Such transformations are, in themselves, neither good nor bad but become so according to the social context in which they occur. Hence, it may be a form of ambiguity or ambivalence that lies at the heart of this question but it has less to do with cross cutting categories of thought than the potential of such transformations for good and evil and the difficulties inherent in dealing with them.

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[43]. See, for instance, Phillipson (1968), Berrnhard (1968), Hatton (1967), Wyckaert (1914), Hodgson (1933), Prendergast (no date).

[44]. This is taken a step further amongst the Mbeere (Brown, 1971) where no smelting took place while crops were growing since it was thought that the use of the medicine that bound the ore together to produce the bloom would endanger the crops.

Fecundity, Sorcery and Community

Links between human procreation and smelting[45] are not given explicit expression in the ideology of smelting in BABUNGO. However, very strong implicit associations are revealed in the rituals and ceremony, and use of medicines surrounding the establishment of a foundry. These are clearly expressed in the chanting of praise songs for twins on the occasion of the erection of the foundry beams and also in the prayers for the reproductive fertility of the chiefdom and the productivity of the foundry that are made at the ceremony of the blessing of the new foundry.

Both human fertility, especially in the form of twins, and smelting success are seen as ultimately deriving from the blessing of NYWI, ie. spirit or breath[46]. In the context of iron production NYWI is located, or has a point of emanation, in the medicines buried beneath the furnace. The blessing of NYWI is considered to bring good fortune, or "MUBWANOE", which derives from the use of medicines not effort. The bloom that is broken out of the surrounding cake of slag on the NGHO-ITAA stone is first placed on the NGHO-NTENG stone which faces the mouth of the furnace and is revered as a point where NYWI may be present and also is the stone on which the medicines to be placed beneath the furnace are prepared. Those present in the foundry then bow and clap their hands to the bloom and the sacred stone

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[45]: The furnace is anthropomorphic in terms of a mouth, nose and eyes, the slag is the "shit" of the furnace. It is not apparently gynaecomorphic.

[46]: Chilver (1987) discussing the similar NSO concept of divinity "NYUY" renders this term as "breath" since it was "formless, impersonal and genderless". She notes that "it is partible in its manifestations in all life and nature" and that it blows life "into the womb at the sixth month to give motion to the foetus".

and utter the praise names of NYWI[47]. The bloom may then be taken and sold.

It is believed that if a TUNAA has effective medicines to gain good fortune from the blessing of NYWI then his foundry will be highly productive. In the ideology of smelting the concept of "MUBWANOE" explains why widely different returns may be the outcome for seemingly equal labours. The individual who places the medicines beneath the furnace would either be a specialist in the use of medicines to acquire good fortune through the blessing of NYWI or a TUNAA of an especially productive foundry.

How was it believed that iron was actually produced? In practical terms it was considered that the heat of the burning fuel melted the tuyères together with the ore to produce bloom and slag. This was based on the observation that up to half of each tuyère was lost in the course of the smelt and that each bloom was produced at a position in the hearth just below the tip of the tuyère. However, this was not considered to be the significant question by those participating in the work. This was rather what factors determined the relative success of the smelt, ie. the size and quality of the bloom produced? Empirical observation brought home the realisation that equal effort did not necessarily entrain equal rewards. This inequality of outcome was not usually attributed to poor selection of suitable ore nor to the competence of the WOENFIIBUU supervising the smelting operation but rather to the good fortune, or MUBWANOE, of the TUNAA and the efficacy of his medicines, buried in the pit beneath the furnace, in promoting this good fortune.

These medicines, collections of green and succulent leaves and plants collected from all over the chiefdom,

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[47]. This was done in precisely the manner in which respect is given to the FON. It is one aspect of "Fonship" that he is considered to be sacred and to embody the fertility and prosperity of the chiefdom, through his separation from the ordinary profane world and also through the use of powerful medicines.

represented by homology the goodness and fecundity that was to be extracted from the earth in the course of smelting the ore to produce the bloom. They represented the means by which the blessing or beneficence of NYWI was obtained for the benefit of the TUNAA and those using his foundry. Other medicines were tied to the posts supporting the foundry roof to ward off the malicious influence of witches.

This research was undertaken in the 1970s some 30 to 50 years after smelting had ceased and almost 70 years after the initial penetration of Islamic and Christian beliefs. It is unclear how far explanations of the smelting process recorded at this time from informants, who, for the most part, would have been junior participants while the industry was still operative, accurately reflect beliefs that were current in the precolonial period. It seems plausible that their explanations may represent a transformation of original beliefs through a combination of concealment from colonial Administrators and European inquirers of the true nature of these beliefs and their partial reformulation in terms of Christian and Islamic paradigms.

This point applies most especially to the use of medicines. Detailed information on their nature and composition was extremely hard to come by. One encountered a repeated and general consensus that it would have proved impossible to reconstruct smelting practices as the knowledge of these medicines had been lost since most informants had succeeded after smelting had ceased and so had not had this knowledge transmitted to them. Conceivably this represents concealment of practices considered unpalatable to western sensibilities. Alternatively, it may simply represent a means of concealing and preserving the formerly scarce and profitable secrets of iron smelting[48].

There were beliefs, current outside the main area of clump furnace usage, that a slave or a dog[49] was sacrificed and buried beneath these furnaces. This was impossible to substantiate from informants' accounts since virtually all furnaces in BABUNGO had been constructed 4-5 generations prior to this enquiry. Examination of the pit and pot buried beneath the BAKWANG furnace certainly revealed no evidence of bones of man or animal. However, this form of sacrifice did not involve the total interment of the body but rather only that part of the viscera which was believed to be the organ containing the heritable substance which facilitated the extraction of the wealth and fertility of enemies through sorcery[50]. Presumably the viscera would not be preserved in any recognisable form and would decompose along with the vegetative medicines into a homogeneous mass. In this context it should be noted that the lidded pot located at the base of the furnace pit excavated at BAKWANG had a 1cm hole bored in its base. This suggests that it was thought to contain a substance that required an egress[51], perhaps in order to go to extract the

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[48]. This is highly probable since at no point was it actually suggested to informants that any reconstruction should take place. Hence, statements to the effect that "we can not do it again because we do not have knowledge of the medicines" were either true or represented an attempt to preserve the mysteries of a profitable craft that might one day be needed again.

[49]. Malcom (1923, unpublished MSc. thesis) signals the mediatory role played by dogs between man and the supreme being that created the world, MBOMVEI. However, the words for dog and slave are virtually identical and these are often the subject of puns.

[50]. See Chilver (1987), Rowlands and Warnier (1988), Price (1987).

[51]. This feature of the pot which is essentially a female thing brings to mind the TIKAR notion that while both sexes have a witchcraft substance within the body only the woman has a vagina that allows it to leave and so give

goodness from the earth, or whatever, to take and form the bloom produced in the smelt.

Human sacrifice did occur in the region as an element in peace pacts between warring chiefdoms. A slave from each side was buried in the territory of the other facing back to the original chiefdom and a tree planted over the grave[52]. BABUNGO informants did pass on a piece of morbid fantasy that when a furnace was complete and the medicines were to be buried beneath the furnace an old man would be taken and something removed from him such that he would die shortly afterwards. All this is entirely speculative and might only be substantiated by some form of laboratory analysis of the materials located beneath the furnace that would reveal an faunal or human origin.

Nonetheless, a very important element of both the notions of rapacious internal substances[53] as instruments of sorcery and the entire attitude set to iron production dovetails in the cooperative ethos which provides social validation for both activities. The first notion is that of a heritable bodily substance as an instrument of sorcery that is evil when used for individual gain but socially good when employed for communal goals[54]. If this substance is socially controlled it will benefit the community as a whole. The whole ethos surrounding work in the foundry was one of cooperation in the work and sharing of the products. The foundry personnel are firmly set in a familial paradigm represented by the father, mother and children of the foundry.

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her extraordinary powers (Price, 1987).

[52]. Kaberry, BALI KUMBAT fieldnotes 1960 and 1963.

[53]. Termed "sëm" in NSO where it is considered that it may be good, sëm vifon, or bad, sëm arimi. No connected account of the relationship between these beliefs and the fecundation given by NYWI was obtained in BABUNGO.

[54]. Rowlands (1986), Rowlands and Warnier (1988).

The cooperative element in the organisation of labour and provision of access to equipment is very highly stressed in all accounts of the work. Hence, the TUNAA, the foundry owner, might work only three out of the eight day week the remaining days being set apart for those who had cooperated and helped him in the past. At the very inception of a foundry a ritual took place in which raffia wine is given first to the furnace, or to that substance or medicines providing the fertility that is embodied in the bloom, and then shared among all the TUNAA of the chiefdom who must be present at the ceremony. This represents a symbolic disavowal of the use of sorcery by one TUNAA against another. They should not be in competition with each other and prior to the wine sharing each TUNAA will have contributed a share of the medicines to be buried beneath the furnace. Similarly, the analogy drawn by informants between the cooperative nature of relations between young men coming together to acquire the necessary material inputs for a smelt and the SHWAA, rotating credit association, emphasises further the cooperative nature of this means of wealth accumulation.

Individual gain is masked and the sorcery that lies at the basis of conceptions of iron production is thus seen to be socially controlled and directed to communally beneficial ends. Furthermore, the community is not simply the lineage or, even, clan group but is the chiefdom as a whole defined in terms of its ritual and political allegiance to the FON. A TUNAA could neither refuse use of his foundry nor demand payment for this right to any man whose wife was about to deliver a child since children represent the prosperity of the chiefdom. Similarly no child or youth might be refused entry to come and work in the foundry. Accordingly, if the medicines buried beneath the furnace are viewed as a substance acting through sorcery to extract wealth from elsewhere and transform it into the bloom produced at the end of a smelt then this substance is controlled by means of the cooperative nature of the work and the sharing of the product. The bloom is shared to the TUNAA, the father of the foundry, the NSHUUNAA[55]; the mother of the foundry and the VANGNAA, the children of the foundry as well as to those actually operating the foundry on their own behalf and the WOENFIIBUU put there to oversee the operation by the TUNAA. The wealth produced is shared to all who stand in some social relation to the TUNAA who not only owns the foundry but also controls and owns the medicines.

Why should this have been the case? Why should this cooperation and open access to the foundries have transcended the boundaries of the descent group? At the conceptual level not to have this ethos of cooperation taken together with the notion of sorcery providing wealth, offspring, bloom, crops, etc. would entail an intolerable situation of competitive sorcery that would threaten the survival of the community, the chiefdom. At a more practical level the wider the bounds of the group permitted to use the foundry the greater the potential profit that might accrue to the foundry owner. A TUNAA with a reputation for powerful medicines and a productive foundry would have his own labour and material input costs reduced to an absolute minimum since many, including less fortunate foundry owners, would be queuing up to ingratiate themselves through the contribution of labour and materials. So in this system success breeds success and the underlying belief system is reinforced.

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[55]. If the NSHUUNAA did not receive her customary portion of the bloom it was thought that her "belly would grumble" and cause problems for the successful running of the foundry.

TUNAA and FON

This leads on to the nature of the relations between the TUNAA and the FON and the common beliefs which underpin the pivotal role of each. Informants stressed that a TUNAA was just like a FON[56]; he might simply sit and wait to receive the gifts bestowed on him in return for his favours, in this case access to the foundry, and the wealth this might produce. Behind this lay the notion that the FON and his sons[57] possessed superior and more efficacious substances of sorcery in the viscera for the extraction of wealth and fertility from their enemies. A good and powerful FON was believed to use this agency to increase the population[58] and material wealth of his chiefdom.

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[56]. Greig (1934) notes for the Fipa that for the duration of smelting operations the smelter is given the temporary title of "chief".

[57]. Many compounds of commoners, even up to the present day, have a special pot of medicines, termed "BU", hidden close by to deflect or protect them from this superior power of sorcery possessed by the sons of the FON.

[58]. While this was the ideal, in reality an otherwise apparently successful FON might fail at the very first stage in expressing these qualities. For instance, FON NYWIFON (?-c.1870) of BABUNGO, who reputedly ruled for a large part of the 19th century, was most certainly barren. This appears to go right against the grain of what the essential qualities of a Grassfields FON should be, but his was not an isolated case and in the neighbouring chiefdom of Big BABANKI the sixth in the kinglist, FON MBU-NGGONG, was also childless (E.M. Chilver, BABANKI 1963 fieldnotes). Interestingly, it is NYWIFON who is linked to the large increase in BABUNGO iron production in the early part of the last century. He is also accredited with introducing a form of NKAP marriage whereby he purchased both male and female slaves from BAMILEKE chiefdoms to the south of the Ndop plain and married them together in order to fill the ranks of the otherwise depleted royal clan. Unlike most other Grassfield chiefdoms where this form of marriage, if it existed at all, was restricted to the FON or senior nobility, in BABUNGO it was widely practised especially in iron working households. Hence, in the minds of informants his failure to father children is compensated by his association with great material wealth that, itself,
(continued...)

Their analogous[59] role is further cemented by their relation to the earth of the chiefdom. It is a common Grassfields idiom that important things of value are represented as things of the earth and things of God[60]. The FON is explicitly associated with the fertility of the earth so much so that a poor harvest might lead to his dismissal[61]. The smelter likewise transforms earth/ore into wealth/bloom for the chiefdom through his medicines and foundry. In the foundation myth for the chiefdom the descendants of the first FON and his followers are all smelters, the smiths have no place in the story and are said only to arrive later, by invitation from a subsequent FON. All the major ceremonies associated with the establishment of a foundry occur on the day, MBAA, which commemorates the day on which the founders of the chiefdom emerged from their cave. The senior titleholders in the political hierarchy of the chiefdom are all TUNAA with their own foundries.

It is, perhaps, in this context that the apparent failure of the large scale mode of production, with separate smithing and smelting, to persist in the face of diminution or loss of autonomy in the wider region may be understood. It is as though the almost genetic ties between FON and TUNAA and the earth are dependent on the paramountcy of the former and when his rank is diminished the relationship of all to the earth and its products are

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[58](...continued)
through the purchase of slaves served to increase the population of the chiefdom.

[59]. Although no informant volunteered the point it appears that the FON was excluded from the foundry. Vollbehr (1912) mentions this and seems to be confirmed by a report (SEF 528) on the Resident's tour of the province in 1941. If this was the case then it may be that the FON had to be kept apart from the fecundating agency of the furnace because of his superior powers of sorcery.

[60]. Kaberry, 1952.

[61]. Nkwi (1976).

conceptually weakened to the point that separate smelting may cease. In BABUNGO large twin blooms were "KOHNYWI", ie. a gift of NYWI, and as such the rightful property of the FON and were included as part of the royal grave goods[62]. If BABUNGO had come under the political and ritual domination of either of its larger northern neighbours, KOM or NSO, it is hard to believe that smelters would have continued to invest so much labour and time in producing blooms that might be liable to seizure by a FON to whom they were not bound by common ties from their mythical origins and with whom they shared no common links to the earth of the chiefdom. Hence political submission to another FON breaks the shared links between FON/TUNAA and earth/wealth. The TUNAA is no longer associated with the superior powers of the founding, ancestral FON who has been replaced, or, at least, downgraded, and may simply cease to smelt.

[62]. In a similar vein, in BAFUT, where the large scale mode of iron production had ceased, rust from hoes was scraped into the libation holes of royal graves at the annual round of sacrifices. The associations between the earth, royal ancestors, iron and power are further expressed in BAFUT in the context of promotion to senior rank in the higher KWI'FO lodges. Those seeking promotion offer hoes which are placed in the royal grave and from here can be taken for farming use by women of the palace (Kaberry, 1960 fieldnotes).

SMITHING

Introduction

Data on smithing practices were gathered from informants active in the industry in the early 1900s prior to the cessation of iron smelting. Large scale smithing has continued through to the post-colonial period using scrap iron largely of European origin. BABUNGO ironware now has a very wide area of distribution reaching markets at the coast and extending into neighbouring states. Its main market remains the local Grassfields region which it supplies with a broad range of items not, unlike hoes and machetes, supplied by modern industrial sources.

Since smithing has continued up to the present day it was necessary to attempt to avoid the pitfall of relying on accounts of so-called traditional practices that may be largely coloured by more recent experience. To this end a parallel study of contemporary smithing was undertaken which indicated the evolution of new techniques to deal with new material sources of iron and also a broadening of the range of products as European items of manufacture were copied. More significantly this study indicated radical changes in the recruitment and organisation of labour as opportunities for external employment siphoned off the key labour component, ie. dependent males, sources of male slaves dried up, and ties between compound heads and dependents were weakened. This has restructured relations between those remaining active in smithing so that those working together in the smithy have more equal standing than appears to have been the case in the past.

FIG. 21 **BABUNGO SMITHY 1940**

The Metropolitan Museum of Art, New York

The Robert Goldwater Library

Paul Gebauer Collection

Establishing a Smithy[1]

The construction and furnishing of a smithy was considerably less costly in material and labour than that required for a foundry. The major costs comprised provision of the central stone anvil and manufacture of the iron hammers and anvil. The very large number of other tools[2], including various stone hammers and anvils, that might be on hand in any one smithy were not in themselves costly but do reflect a high level of complexity of smithing as a technical skill which has not always been recognised as such by western scholars[3].

The smithy was a simple shelter constructed from two rectangular bamboo frames supported on a base of wooden stumps and thatched with roofing grass. Smithies were built in one general form but in different sizes according to the size of the potential workforce. However, even the largest smithy required less than a quarter of the labour necessary to build a domestic dwelling. The hearth was simply a bowl shaped depression in the floor and not lined with stones or clay. Apart from the central stone anvil there were a number of other smaller stone anvils and hammers for specific tasks that had to be fetched from some distance away. These did not, however, require the concerted efforts of a large number of carriers as did the central stone anvil which was highly valued and if the smithy caught fire the first task of the smith was to throw earth over it to prevent it cracking in the heat.

In the case of smithing it was possible to get direct personal accounts of the establishment of a smithy. One informant who built his own in the German period when

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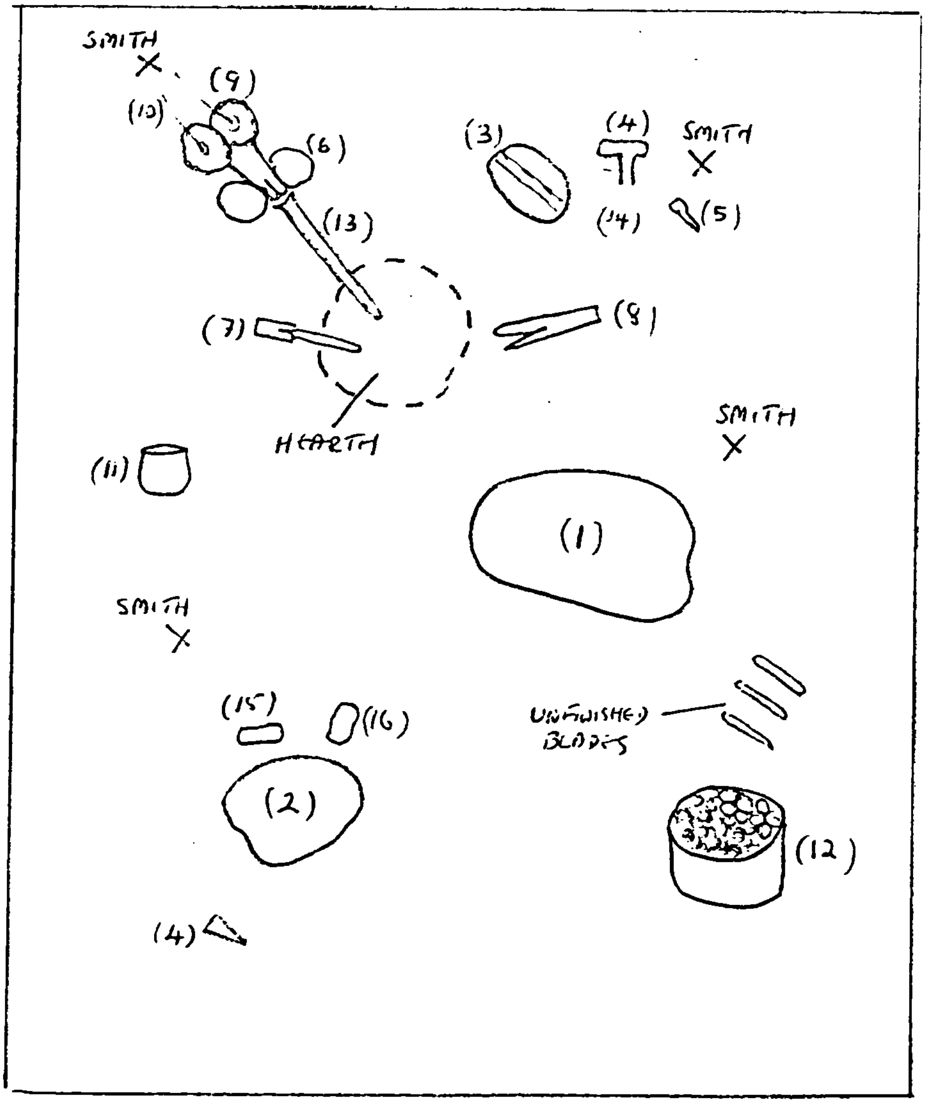
1. See Diagram 5.

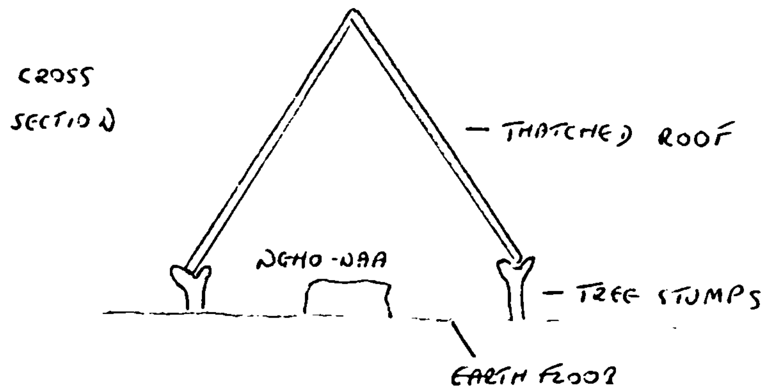
2. See Smithy Inventory, following section.

3. See Jeffreys, 1948. The use of stone tools by smiths is sometimes taken to indicate a low level of technical development whereas there are, in fact, some technical and economic advantages to be gained.

Diagram 5

Layout of Smithy (1975)





cowries were still in use described the circumstances as follows :-

> "I grew up in my father's compound and learnt smithing from him. I began to make small items of ironware which I sold in the market. I kept the money until there was enough to buy some fowls and a goat. These were reared in my father's compound. They multiplied so that when the time came they could be sold so that I would have sufficient money to build my own compound and smithy. When I had married one wife and my father saw that she was bearing children and that I was becoming rich this way, he went to the ward-head and begged for a plot of land on which to build a compound for me. I built this compound with my father's help and began to take my property bit by bit to the new compound. I started to sleep there even before my wife came to follow me. Things were done gradually in this way so that people would not think that I had quarrelled with my father. After I had moved all my things and my wife had come to join me permanently in the new compound I continued to work in the smithy of my father in order to raise the money to build my own smithy. After a time I had married three more wives and now had two very young sons. My father's smithy was becoming very crowded. He had installed a second central stone anvil as there were so many people coming to work there. I

> decided to build my own smithy. I went around and invited people to come and help me in this. I had given assistance to some of these people before and later, in my turn, I helped those who aided me in building a smithy. I paid only for a man to do the thatching of the smithy. I was helped mostly by my friends, who were my age-mates, and from amongst my relatives my brothers helped me most of all."

After the smithy was built the next step was to organise the carrying of the central stone anvil. This had to be "bought" with a payment of c.2000 cowries to the ward-head where it was located, and similar payments had to be made to the FON, BA, and the ward-heads of FINKWI and FINTENG. It was necessary to prepare a large feast of fufu and cooked meat and to buy a considerable quantity of raffia wine. Those helping to carry the stone received an extra large share of the feast. This stone was extremely heavy and suspended from ropes tied to bamboo poles with c.10 men supporting the load on their shoulders in relays it was borne to the smithy where all non smiths were driven away and the VOETUEYOE, the association of senior smiths, undertook its ritual secret placement. For this they received substantial payments. Once the stone was in place a specialist in medicines was called to bury these by the stone, and the actual feast commenced.

While this stone anvil was essentially a functional item in the smithy it had important sacred aspects. Only the black NKO masker might sit on the stone without risking death. At the end of each season libations of raffia wine, palm oil and camwood were made to the ancestors and spirits of the compound including the anvil since it, too, was considered as a point of emanation of spirit, NYWI. These libations were made to ensure good fortune, profitable sales of products, and to avoid breakages of tools or injuries from splinters of red hot iron. The same libations to the anvil were made when a woman in the compound delivered a child. Finally, when a smith died his relatives would come and place 1000 cowries and a calabash of raffia wine at the base of the stone. Other smiths came and drank the wine and took the money.

The manufacture of the iron hammer and anvil was similarly costly in labour and feasts. These tools, too, were essentially functional items but also had significant sacred and ritual aspects. The manufacture of the iron hammer was considered the most difficult and laborious task undertaken in the smithy and likened to the manufacture of double gongs. The work was done in secret with non smiths, particularly women and smelters, driven away. On the first day the bloom was brought and broken up into small pieces. On the second day the pieces were put into the hearth and heated to form a large lump of iron. The following day it was heated and hammered to remove the slag still contained in the bloom. On the fourth day part of the iron was forged into a hammer, and the remainder into an anvil. Finally, on the fifth day both items would be finished off by smoothing and polishing. Informants accounts indicated that up to 45 man/labour days were required for the manufacture of both iron tools which reflects the very high value placed on them if not the actual work needed to make them. When finished the hammer was reheated till red hot and then plunged into a pot of raffia wine[4] which was drunk by all present. It was thought that if anyone, who had drunk the wine, were to steal a hammer he would get sick and die.

Once the tools were complete the feast began. The new master smith might prepare up to ten calabashes of raffia wine, ten basket trays of fufu, quantities of cooked meat,

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[4]. This is the only example of "quenching" of ironware by smiths and was not apparently perceived as anything other than a ritual act.

a stick of dried mudfish and a cockerel. Those master smiths who had previously made their own iron hammers were invited to the feast. The mudfish was shared out between them and the cockerel taken and wiped on the iron hammer and then shared out. Meanwhile, those outside the inner courtyard of the compound were feasted with the fufu, meat and wine. Once all this had been done, and the special gifts made to established master smiths, the new master smith was recognised as such, and might take his own share of gifts on similar subsequent occasions.

The very high value placed on the iron hammer is illustrated by the words of one smith :-

> "There is nothing in the world like this thing, it is the first thing they had when BABUNGO came here[5], it is the mother of the world."

The hammers were thought to have magical powers. This may be linked to the practice of incorporating a tiny fragment of the original iron hammer that the mythical smith FWANMBU brought with him when he fell from the sky. They could be used to drive away the spirits of the dead and to punish witches. If a smith, for instance, were to hear of the suspicious death of the child of another smith he would take the hammer and raffia grips to the hearth in the smithy and tap them together and utter a curse:-

> " Oh child who has died, if it was a man that has caused your death this hammer will also kill him."

The smith then taps the tools together while walking around the smithy and finally casts them down on the path before returning to work. If he failed to do so he would be

[5]. In fact, the iron hammer is said in local myth to have been brought by a mythical smith who falls from the sky and introduces its use to an established smithing community.

unsuccessful in his work that day since the "shadow" of the child would come and spoil it. Tapping the tools together drives away this "shadow". This ritual was also performed for other smiths, their wives, master smiths, and princes resident in the sub-ward.

The magical power of the iron hammer was also a positive force. When a son was born to a smith he would take the hammer and press it against all the joints of the newborn infant. It was then held in the baby's hand and shaken. This was done so that when the child grew up he should not be too stupid to learn smithing. After this had been done the iron hammer was left for one to two weeks before being used again.

Smithy Inventory

ITEM	FUNCTION
Iron tools	
LUAN-NFWETOE	Hexagonal headed iron anvil socketed in a large piece of wood partially buried in floor of smithy, used for forming and finishing pins, knives, cutlasses, axes, hoes and spears. Also called LUAN-BULUBA.
LUAN-NSII	Smaller round flat topped iron anvil.
WEHLUAN-FIANOE	Iron hammer used for smoothing and finishing on LUAN-NFWETOE. Also for working knives with "spine" or midline.
WEHLUAN-NFWETOE	Smaller iron hammer.
LUAN-LONGSOE	Iron hammer for straightening and smoothing off blade edges
LUAN-SHWOSIIDOE	Iron hammer for working knives with no "spine" or midline.

ITEM	DESCRIPTION
NYO'ON	"Chisel" used for breaking up red hot scrap such as old hoes, etc., and for marking spears and cutlasses.
NTO'NAA	Iron tool for boring holes in spears, etc..
MBII	Tool for forming sockets in wood.
BA-NAA	Flat-bladed tool for removing ash from hearth, manipulating bloom, and opening "mouth" of double gong.
NDITOE	Hafted tool heated for blackening and marking cutlass and knife handles.
GWII	Small knife for carving hafts.
MO'SOE	Rounded small pieces of iron used as "studs" for butt ends of handles.
Stone Tools	
NGHONAA	Central stone anvil and main working surface for heavy hammering and breaking up bloom. Largest stone anvil in smithy.

ITEM	DESCRIPTION
WEHNGHONAA	Small stone anvil for shaping hoe with LUAN.
IBUU	Main stone anvil for shaping and forming iron that has been hammered into rough shape on NGHONAA. Ironware worked on this anvil before being finished on LUAN-NFWETOE.
NGHOTAU	Small stone anvil with right-angled groove in centre for straightening knife blades.
NGHOWULE'	As above, but with "U" shaped groove for forming spear sockets.
NGHONTENG	Long flat stone anvil for breaking up blocks of bloom for shingling, with characteristic depression on top surface.
NGHONCHASOE	Small flat topped stone anvil for hammering a heated block of scrap iron.
NKONG	Smaller stone anvil for forming iron on NGHONAA.

ITEM	DESCRIPTION
NSHUNG	Large black stone hammer for flattening and elongating red hot block of bloom on NGHONAA.
WEHNGHOIYENG	Very heavy round stone hammer used to hammer large lumps of iron on NGHONAA.
WEHNGHONTENG	Hammer stone for breaking up bloom on NGHONTENG.
NGHONSHIA	Stone hammer used for forming bloom into round ball prior to shaping hoe.
NSHING	Round headed stone hammer for shaping axe.
NGHOKANG	Stone for grinding old slag for use in polishing blades.
NGHOMUU	Stone hammer for levelling top of stone anvils and striking edges of stone hammers.
NGHOSOEGHII	Two ordinary stones used to hold bellows steady while pumping.

ITEM	DESCRIPTION
Organic Tools	
DUU	Temporary wooden haft for holding knives and pins while forging.
KUU'NAA	Palm frond grips for holding hot iron.
SHWII	Maize cob leaf water sprinkler for cooling hearth or iron.
NKONG'FA	Conical shaped wooden batons of various sizes used for forming basic shape of a single iron gong.
GHII	Wooden twin bellows, c.2ft 6in. long.
MNTUMOECHOESOE	Bellows sticks.
JIA-NAA	Palm frond brush for sweeping clean the various stone anvils.
NGWA-NYWI	Wooden handles for knives.
NFEĖ	Spear shafts.
GHOSOE	Bellow skins, usually goatskin.

ITEM	DESCRIPTION
FUNKOFOELUAN	Wooden socket for iron anvils.
Other Items	
SAO	Clay tuyère, unfired.
BUU-NAA	Water pot.
KANG	Old slag ground up for polishing blades of knives and cutlasses.
NKOO-KISSOE	Charcoal.
NKUNG	Hollowed out log 1-2 feet in length for holding water. Plain, no designs.

Labour and Material Costs

The costs entailed in the establishment of a smithy centred on the construction of the smithy, the collection of the stone tools, the manufacture of the iron anvil and hammers, and the provision of feasts and gifts to other smiths.

Observations of contemporary smiths replacing burnt out smithies indicated that the work could be done piecemeal by a smith working alone over a period of a few weeks or more rapidly by a group of smiths working together. While there were specialists who built the bamboo frames for house construction, most adult males in BABUNGO were able to do this. The two sloping gable roofs of the smithy were not, together, larger than the single wall section of an ordinary dwelling. The small amount of thatching required was done either by smith or by a specialist thatcher from KOM. A labour input of c.120 man/labour hours was more than sufficient to complete the smithy.

Apart from the central stone anvil all the other stone hammers and anvils were light enough to be carried by one or two smiths and were gathered from river beds no more than one or two hours trek from the centre of the chiefdom. For the collection and transportation of all these stone tools it is estimated that c.100 man/labour hours were required. The massive central stone anvil was carried by 5-10 men and was set into a small pit. The stone might also need to be dressed in situ before being carried to the smithy. Accordingly, c.100 man/labour hours is the estimated labour input for this item. The manufacture of the iron hammer and anvil was the most costly item in labour and c.360 man/labour hours were required for their manufacture. This gives a total of c.680 man/labour hours for a new and fully equipped smithy. This is considerably less than the c.4000 man/labour hours required to establish a working foundry.

Actual labour costs are likely to have been considerably more variable than those for a foundry. Furnaces were not built in standard sizes but observations of well preserved examples indicated that they were generally of a similar volume. In contrast, a smithy could be built to any size according to the workforce that was to use it. Similarly, the central stone anvil could be large or small, and their might be more or less iron tools. Photographs[6] of BABUNGO smithies taken in the 1930s indicate that smithies at this time were considerably larger than contemporary ones, although the structure and layout remain the same.

Recruitment of labour for building and equipping a smithy paralleled that involved in establishing a foundry. The smith and his kin, along with neighbours, who expected to work in the smithy, contributed their labour. However, the nature of the labour inputs involved in smithy construction were far less intensive and, apart from carrying the central stone anvil and making iron tools, the work could be done on a piecemeal basis. For a foundry much larger inputs of labour had to be marshalled at one point in time to accomplish various tasks in order for the work to be done effectively.

[6]. Gebauer, unpublished photographs.

Labour Recruitment and Apprenticeship

Whereas in the foundry non specialist labour was marshalled under the supervision of WOENFIIBUU, in the smithy only skilled smiths or apprentices were operative. Occasionally, a prepubescent daughter of a smith might lend a hand pumping the bellows or an older man, retired from active smithing, might do the same. Non smiths were not excluded from the smithy, only from working in it, and were free to come sit and exchange gossip with those at work. The exclusion of non smiths from contributing labour in the smithy signals a very high degree of occupational specialization not found elsewhere in the context of Grassfields iron production.

Labour

Informants stressed that anyone skilled in forging iron might come and work in any smithy and the master smith could not deny them entry. The open nature of access to the smithy[7] was such that even a non BABUNGO[8] smith could simply place his iron in the hearth and begin forging. However, more usually a master smith was accompanied in the smithy by his adult sons and brothers, youth apprentices and one or more slaves.

A reconstruction of the labour composition for twelve smithies operating at the turn of the century gave a total labour force of 65 persons of whom 43 were freeborn adults, 10 were youth apprentices, and twelve were slaves. The 31 freeborn adults working under 12 master smiths comprised:-

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[7]. Earthy (1934) notes similarly that the Gbande smiths of Liberia were free to use each others forges.

[8]. In 1975 an IBO smith was operating his own smithy close to the central market place of BABUNGO and was clearly not excluded from networks involved in the acquisition of charcoal and scrap iron.

Table 7 Labour Composition

Sons	Brothers	Daughter's Husbands	Non Kin
17	8	2	4

Twelve smithies represents approximately 20% of the total number thought to have been operative at this time. While the sample is too small to make firm statements it does tend to indicate that adult sons, adult brothers and slaves belonging to a master smith constituted the bulk of the adult labour force available to him in the smithy.

This also implies that master smiths were able to constrain compound fission, since the establishment of a new smithy only ever followed departure from ones' original compound and did not precede it. While the costs of doing so were high, the organization of labour in the smithy and the division of rewards may also have been significant in serving to constrain any exodus of junior smiths.

Figures gathered on the composition of labour in smithies in 1975 showed that a labour force of 120 adults comprised :-

Table 8 Contemporary Labour Composition

Masters	Sons	Brothers	Other kin	Non Kin
46	29	17	2	26

This shows a smaller percentage of sons and brothers as a proportion of the total labour force. This may be related to greater opportunities for these kin to establish their own compounds in the modern day and also to the absence of those of slave origin. Observations of smiths at work at this time indicated a very fluid workforce and highly variable levels of skills in any one smithy that may be related to opportunities for outside employment that did not exist in the precolonial period.

Elderly smithing informants stressed that, in the precolonial period, the minimum labour to constitute a "complete" smithy consisted of three persons. One to pump the bellows, while another shingled bloom on a stone anvil, and a third was shaping and forming a hoe close to the hearth. Such a team took only one day to shingle the bloom and forge a hoe. In practice the workforce was usually much larger. That of one informant at the turn of the century was composed of five freeborn adults, four slaves and a number of youth apprentices. The smithy had two hearths and two central stone anvils and produced a large volume of hoes, cutlasses, and double gongs for external trade. Smithies with smaller work forces would occasionally join together to work on the heavier items of production such as the double gongs.

Apprenticeship

Youths learnt smithing between 10 and 15 years of age and the son of a smith might learn equally in his father's smithy or that of an unrelated neighbour. Most elderly smiths claimed that no one ever paid anything to learn smithing. The consensus being that a master smith who had learnt the skill and paid nothing for it should not make a profit out of teaching someone else, even the son of an unrelated smith. This reflects the informal and unstructured nature of learning to smith and meant that, given available space, any youth who was keen to learn might attach himself to a master smith to learn the craft. The benefit to the master smith in taking on an apprentice consisted mainly in his undertaking menial tasks such as pumping bellows, fetching water and charcoal, and running errands. A youth learning the craft would gather the fragments of iron that fell to the floor during the shingling of the bloom until he had a reasonable quantity to hand over to his father.

The process of learning to smith was very informal. A youth was told simply to sit and watch, perhaps while pumping the bellows, for a considerable period of time before he being invited to attempt to forge. Eventually he would be given a small piece of iron to work and encouraged to make a small item such as a needle or simple knife. The first products of the apprentice were his to keep, sell or give away. A youth who was keen and hardworking might be given a small sum of cowries to spend in the market. Gradually he would progress from making simple needles, to knives, and then spears, cutlasses and hoes. After a period of 2-3 years working daily in the smithy when adequate skills had been acquired the apprenticeship was considered at an end. No special ritual or ceremony took place and the youth simply continued to work in the smithy.

The developing relationship between master smith and apprentice was characterised by the gradual acquisition of skills by the apprentice over a long period of time and the concurrent gradual increase in contribution of his labour to the benefit of the master smith. This situation then became transformed so that an individual working in the smithy and indebted to the master smith for the use of the smithy made recompense by working on his behalf on days set aside for that purpose. This might continue indefinitely until a smith decided to move, for whatever reason, and continue working in another smithy or gathered the necessary resources to meet the cost of establishing his own smithy. A smith who had learnt in his father's smithy also had this option but stood to succeed to the father's titles and ownership of the smithy.

A master smith sometimes undertook a form of adoption of an apprentice. This might occur when a youth from an impoverished family was seen to be hardworking and obedient. The father would tell his son to be kind and obedient to the master smith, who would take him into his compound and treat him as a true son. This might be followed by a form of exchange marriage, said to be more common in the past, whereby a daughter was given in marriage without any bridewealth payment. The apprentice was then under an obligation to return a daughter to the master smith for him to give out in marriage and receive the bridewealth. This form of marriage was not unique to the apprentice\ master smith relationship but commonly arose from such relationships.

Organization of Work

In the precolonial period smiths worked six days out of the eight day week only resting on the main market day and the following day when the subscription associations met. Three of these days were customarily set aside for work on behalf of the master smith. He provided charcoal and bloom and also food and raffia wine for the workers, who offered their labour in return for the use of the smithy and its equipment on other occasions.

If a foreign trader commissioned the master smith then more time would be set aside for this work. In addition to providing food and wine for his workers the master smith would give them sums of cowries and also provide meat for them to take home to their wives but he took all revenues from the sale of the commissioned items. On such occasions slaves working in the smithy were not given any extra recompense. On days of work not reserved for the master smith the workers in the smithy operated on their own behalf and each individual might decide what to produce.

Material Inputs

On days set aside for work for the master smith he provided the material inputs of bloom and charcoal. On other days in some smithies all would contribute cowries to a central pool which the master smith used to buy bloom. In other smithies where the individual workers stood in more equal relations to each other one smith would, in turn, buy bloom for one weeks work with cowries contributed equally by the others. For charcoal, however, each smith bought for one day of work on those days not set aside for the master smith. This charcoal was bought from specialist charcoal makers either in the market place or in their compounds.

All tools and equipment in the smithy were provided by the master smith. The iron and stone anvils and hammers were not easily broken and lasted for long periods of time. The set of twin bellows were also very durable but if these needed replacement the master smith might carve a new set himself or purchase from a carver. The goatskins for the bellows wore out quickly and were replaced by the master smith. The tuyères used in the smithy were made throughout the year by the individual smiths, each in turn.

Allocation of Tasks

While, in theory, on those days not set aside for the master smith individual smiths worked making their own things, in practice, single items tended to pass through many hands before completion. If there were three people working one might be forming cutlasses, another polishing finished cutlasses and a third pumping bellows. If an apprentice was present making pins or needles he would continue to do so until the cutlasses had all been formed, then he would join with the others in polishing the blades. While this was being done the master smith might be carving handles for the cutlasses.

Mutual assistance in the smithy was a theme highly stressed by smiths. Many tasks, particularly those associated with the shingling of bloom, required at least two pairs of hands. Frequently it was necessary for one smith to manoeuvre the iron on a stone anvil while another smith hammered, in a drop hammer motion, with a stone hammer. The repeated hammering and heating of iron being forged required someone to pump the bellows for the forging smith. Generally if "heavy" items such as hoes were being made all would join together in the work but if smaller items such as spears were being made then smiths would work more individually once the laborious process of shingling bloom was done.

In only a very few instances was there any indication that one smith specialised in finishing off items of ironware while others did the heavy preparatory work. In such a cases it would be a master smith advanced in years, with highly developed skills, who finished off the final forging touches to items such as ornate cutlasses and spears for the other smiths present. Generally, however, it was the case that individual smiths participated in all the tasks associated with the production of a particular item of ironware.

Products and Division of Rewards

The selection of which items of ironware to be produced in any one week of work depended on a number of factors. If a trader from another chiefdom made a commission then all would join together to make them. If information had been picked up in the market that certain items were selling well then the smiths would decide to make them. The quick sale of items in the market one week would encourage smiths to make the same items for sale the following week.

There was also a strong element of seasonality influencing what was made in the smithy. In the early part of the year, for instance, when people were beginning to clear their farms in preparation for planting, the demand for hoes from the western Bamenda plateau grew to such an extent that the majority of smiths would cease all other production save for the SOVOEKA hoe type used by female cultivators in that area.

The form that product disposal and division of revenues took depended largely on the nature of the relations between the smiths operating in the smithy. Workers in a smithy who were not kin to the master smith sold their own products independently and kept all revenues since they had already discharged any debt to the master smith by working for him on those days set aside for him. Work done under commission to foreign traders gained revenues that went directly to the master smith since he had already made gifts and payments to his workforce in the course of producing the commissioned items.

Where those working under a master smith were adult sons, brothers or apprentices, they might sell their products independently in the market but were expected to hand over most of their profit to the master smith. It was also possible for one smith to take all the products to market and sell. In such a case, if the master smith were working with adult brothers the revenues would be divided so that the master smith got the largest share and the brothers received equal shares. This may be related to the fact that the master smith, as lineage head, had strong rights over lineage wealth linked to an obligation to provide his sons and junior brothers with wives. Slaves were also entitled to sell their products independently but were expected to hand over all revenues to the master smith who would return to them just sufficient for them to make contributions to their subscription associations. In cases where a master smith finished off the products of those working in his smithy it was the practice for him to divide the actual products between the smiths keeping the largest share for himself. In this instance adult sons and brothers and also neighbours would receive equal shares but slaves working in the smithy got nothing but were fed, clothed and provided with a wife by the master smith.

Constraints on Production

Non economic factors that influenced production fall into two categories. Those events, unrelated to smithing, that halted production and those ritual prohibitions and beliefs that might influence the work.

A whole series of events external to smithing served to halt production, albeit temporarily. For instance, if TIFWAN, the regulatory association, went to another chiefdom to participate in mortuary or other major celebrations then no work of any kind might be undertaken until its return. There was a similar prohibition if TIFWAN was engaged in making an important ritual celebration such as the annual celebration at the tombs of the ancestors of the FON. Similarly, if TIFWAN ordered work to be done on its behalf, such as clearing the bush away from the area around the tombs of the ancestors of the FON then no other work might be done.

The mortuary celebrations of important personages within the chiefdom also halted production. After the death of the FON work was forbidden for 9 days, for the death of BA it was 7 days, and for the death of a prince it was 3 days. If the ward-head of FINKWI, the smithing ward, died work ceased for 3 days. Finally, if a relative of anyone in the smithy should die then no work would be done by the smiths who worked there until the immediate mortuary rites were complete.

Women and princes[9] were excluded from smithies in which double gongs were being made, otherwise there were no prohibitions on entering the smithy. In contrast to smelting, there were no sexual taboos or customs of sexual continence practised in relation to smithing[10]. Apart from

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[9]. There was an identical belief amongst BAMUM smiths that witches, including sons of the king, could spoil the welding together of the two halves of the double gong, Geary (1983).

[10]. This situation was not uncommon, see Rosemond (1943).

the initial placing of medicines beneath the central stone anvil, smiths stressed the relative paucity of use of medicines[11]. There was a strong theme that plain effort and the application of acquired skills were the mainstay of success in smithing. However, all smiths still made an annual libation of wine, oil and camwood over the central stone anvil to give them good fortune in selling their goods and save them from accidental injury in the smithy.

[11]. Smiths were, however, strongly associated with the use of medicines in so far as a number of heads of smithing lineages comprised the membership of the NFWEH association that was charged with pollution removal and the task of annually preparing medicines at planting time to "lock the roads" against malevolent external forces of witchcraft.

Process of Manufacture

The process of forging ironware from bloom was observed by Jeffreys[12] who documented meticulously the many steps in the manufacture of a hoe at WEH. The following descriptions of similar work by BABUNGO smiths is based on informants accounts of their own activities in forging locally smelted bloom.

For the manufacture of a hoe the bloom was first broken up into pieces c.1cm^2 on a stone anvil using a large stone hammer[13]. Sufficient crushed bloom was taken to fill a half calabash measure and poured onto the fire in the hearth and the bellows pumped gradually at first but with increasing vigour to augment the heat. Eventually the bloom formed a block but without the slag that had previously adhered to it. An iron spatula tool was then used to remove the block of iron from the hearth. It was held on the central stone anvil with a set of raffia grips by one smith while another hammered it with a hammer stone into a rounded shape. The iron was then reheated until red hot and replaced on the central stone anvil and beaten flat with a different hammer stone. This was achieved through repeated hammering and reheating. The iron hammer was then used to form the flat piece of iron into the shape of a hoe on a small stone anvil. After continuous hammering and reheating the final hoe shape was achieved and the hoe set aside while the socket was forged separately from a smaller, flat piece of iron forged on

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[12]. 1942.

[13]. Malcom (1924) describes this process in BAGHAM where the bloom is prepared by the assistants and apprentices of the smith:-

> "A rope ring resembling a quoit is placed on a stone anvil, and the iron is pounded up inside it to further disintegrate it. The resultant product is then taken to the iron-worker, who works it up into small blocks about four inches long by two inches across."

another small stone anvil into a tube. Both parts were then heated till red hot, a sandy material obtained from grinding up old pieces of tuyère was put on each surface, which were then hammered together to make a weld.

For a cutlass a smaller volume of bloom was broken up and heated in the hearth. The iron was similarly treated but formed into a long flat shape rather than a rounded lump. The actual forging of the cutlass was done on an iron anvil and the edges formed on a second iron anvil. The blade was then rubbed with ground slag to polish it and the edges of the blade sharpened on the central stone anvil. The wooden handle was carved and fixed to the blade. The butt end of the cutlass was pushed part way into the wooden handle and then a small button of iron pinned in the other end of the handle.

Spears and knives were forged in a slightly different manner. The block of shingled bloom was formed into a long rod of iron which was then cut into smaller lengths each of which was then separately forged into a spear or knife. Shot for dane guns was similarly formed.

Double gongs[14] were forged in yet a different fashion. A block of shingled bloom was hammered flat and then forged into a triangle for one side of a single gong. This was repeated for the second side. The two triangles or "V" shaped flat pieces of iron were then heated till red hot and the edges hammered together to make a weld. The entire thing was then reheated and a spatula tool used to open up the mouth of the double "V". A series of cone shaped wooden batons increasing in size were then used to form the shape of a single gong by hammering the metal over them and the entire process repeated to make a second gong. The top of each gong was forged into a curved tongue and both ends heated till red hot. A little of the ground up tuyère

[14]. Arched linked, flanged double gongs formed by welding two halves or sheets of iron together along a wide flange are found in the Congo basin and Zimbabwe (Walton 1955).

material was put on each surface which were then hammered together to make a weld.

Range of Products[15]

Informants claimed that no smith ever invented any item made in the smithy. However, smiths were able to copy an example of virtually anything put before them. This ability to copy has widened the range of products of contemporary smithing considerably. It is unclear to what extent the very high levels of production of ironware in the precolonial period may have tended to standardise and, perhaps, even reduce the range of particular items produced. Malcom[16], for instance, illustrates 73 "kinds" of spear that he came across in BAGHAM. While many of these so-called different kinds of spear are simply larger or smaller versions of single forms this does tend to suggest that lower levels of production, as in BAGHAM, may sometimes be associated with a greater variety of types of a particular product.

The list of products of the BABUNGO smithy given below does indicate in the nomenclature, at least, the very great extent to which this production was geared to external demand. In comparison with the neighbouring centre of iron production, OKU, the diversity of BABUNGO production appears to have been of an altogether higher order and much more highly commercialised since all these items were for sale whereas in OKU only a minority of items produced were intended for direct market sale.

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15. See following page.

16. An Ethnographical and Somatological Study of the Eghap, MSc. thesis, Cambridge 1928.

BABUNGO Ironware[17]

ITEM	DESCRIPTION
Hoes	
SOVOENGO	Large, socketed "BABUNGO" hoe.
SOVOESHIA	Socketed hoe, as above, but half size.
SOVOEKA	Small "sharp mouthed" hoe, with handle tied not socketed.
Cutlasses	
BAVOENGO	"BABUNGO" cutlass with concave blade tip, also called BANGWOLE, or "BANGOLAN" cutlass.
BAMOENJINA	Ornate cutlass with curved "Buffalo horn" blade tip.
BANKUNGTOH	Round headed cutlass used only for show and dance. Displayed by singer of death song in mortuary rites.
BAKWING	Ornate cutlass reserved for use by princes and termed BANINTAI and for senior VOESHUU title set within TIFWAN and termed BAVOESHUU.

[17]. This list does not include all the various iron tools made for the different craft workers of the chiefdom and region. These were not made in bulk for market sale but in response to individual commissions from craft specialists. Jeffreys (1950), for instance, illustrates five different iron tools used in carving clay tobacco pipes in the FONFUKA area of the Grassfields. These comprised two different knives for sculpting the clay, a large-bladed knife used to beat the stiff clay into the necessary rough shape, an iron drill, and a smoothing knife.

FIG. 22 **BABUNGO HOE TYPE**

"SOVOENGO" socketed hoe type, much worn and claimed by informants to have been made from locally produced bloom.

ITEM	DESCRIPTION
Spears	
IGHAU-DJUN	"BABANKI" multi-barbed hunting spear.
IGHAU-MUU	Plain unbarbed hunting spear, also called IGHAU-KONG, or "KOM" spear.
IGHAU-SHAANYA'	Hunting spear with two barbs on either side.
NOEKAI	Ornate spear used by royal women at mortuary celebrations.
IGHAU-MBULULUNG	Ornate spear with bells
DOE	Iron butt end for spear haft.
Men's Knives	
NYWI-BOLO	"BALI" knife, also called NYWI-WOENDONG, or man's knife.
NYWI-KO'	Dagger.
NYWI-YISANG	Plain bladed knife.
NYWI-BWII	Meat knife, usually worked from old cutlass and called NYWI-KATABA.
NYWI-EWII	Small knife for carving handles.

ITEM	DESCRIPTION
Women's Knives	
NYWI-NDAI	Cocoyam peeler.
NYWI-BISSOE	Farm knife for cleaning hoes, digging up yams, etc.
NYWI-WAIMU	Kitchen knife, single edged blade.
MO'SOE	Button of iron attached to end of handles of knives, cutlasses, etc.
Bells	
ISAYIMU	Single gong.
TOFA	Double gong.
MBINGBU	Dog bell.
MBINGSIFOENG	Child's anklet bell.
MBINLOE	Bells attached to raffia bags carried by women at mortuary celebrations.
Craft Tools	
CHITUNG	Basketry pins.
NCHWA	Boring tool for bamboo for building.
MBISOE	Various carving tools.

ITEM	DESCRIPTION
Tapping Tools	
NJANG-YILU	Small hoe like tool for cutting away area of raffia palm for tapping.
MBI-YILU	Tapper's knife.
Other	
NJANG-YISOE	Axe for splitting wood.
YIGHAU-YIGHWING	Arrows.
MOENKWIKWI	Finger rings.
NFINGSOE	Bracelet.
BIA	Pipe stem.
TASOE	Needles.
NTO-NDAI	Skewer for holding cocoyams for peeling.
GHAUWII	Shot for dane guns.

Productivity and Profits

The manufacture of the main item of produ-tion, the SOVOENGO, or BABUNGO hoe type, including the shingling of the bloom, took 3 man/labour days. The same labour input would produce two of the SOVOEKA hoe type commonly sold to traders from western chiefdoms. Similarly, one man/labour day was sufficient to produce one BAVOENGO, the BABUNGO cutlass type. Eight man/labour days were required to make one set of double gongs c.18in in height. A smith working alone could produce four spears of the IGHAUVOENYO type in one day if he had prepared iron but would only make two if it was necessary to shingle the bloom. Using shingled bloom it was possible for three adult smiths to make either 3 FOEKWAI, the ornate walking spear, or 8 IGHAUMUU, a hunting spear, or 20 NYIBISSOE, common farm knives, or 30 NTONDAI, skewers for peeling cocoyams.

A large double gong c.18 inches in height, requiring bloom bought for 2000 cowries and charcoal for 1000 cowries, sold for c.10,000 cowries, although it was more likely to be exchanged for a slave. The master smith would also give his workforce an indeterminate sum of cowries and a gift of meat for their wives in addition to providing wine and food. Accordingly, disregarding capital costs of smithy equipment and also assuming that the purchaser was a foreign trader coming privately to the smithy or compound of the master smith, then profits are likely to have been around 100%. The production of a SOVOENGO hoe generated lower levels of profit. Soon after the turn of the century a hoe that was sold to a BABUNGO purchaser for 1500 cowries would have required bloom costing 500 cowries and two baskets of charcoal costing a total of 400 cowries. Larger profits, disregarding transportation costs, were generated by taking such items to sell in external markets.

It was not possible to determine exact profit levels, not only because of the factor of hidden costs but also due to the non standard nature of measures of material inputs.

However, it seems likely that profit levels were highest in relation to the production of major items such as large double gongs and lowest in relation to smaller lightweight items such as spears and domestic knives. At the top end of the scale profits are likely to have been around 100% while at the lower end they may have dipped as low as 30%.

INTEGRATION

The Division of Labour

Smelting and smithing were completely distinct spheres of production linked only by the economic transaction entailed in the acquisition of bloom. The smelter either exchanged his bloom for cowries, palm oil or other external trade item, or the smith took bloom on credit to be repaid when he had made and sold his ironware. It was not the practice for a smith to contribute labour or materials to a smelter in order to acquire bloom.

While smithing and smelting were mutually exclusive, the former was more exclusive in its own right than the latter. Smelting was organised so that the only specialist role was that of WOENFIIBUU and anyone with the requisite materials and labour might use the foundry under his supervision, with the permission of the TUNAA. A non-smith, however, had no opportunity to participate in smithing other than, in theory at least, by attaching himself to a master smith as an apprentice for a number of years. Smiths were not barred from the foundry but the availability of bloom on credit together with the arduous nature of smelting and the great investment of time and energy in acquiring smithing skills made it unworthwhile for a smith to participate in smelting.

Political Integration

BABUNGO smiths did not constitute a distinct social category of the population, smiths married the daughters of non-smiths and smiths alike, but in the political sphere smiths considered themselves as a group to be excluded from the senior ranks and title-sets of the chiefdom. This was expressed as a division between the VOEEYOE, the smiths, and the VUIDENG, the smelters of the chiefdom[18]. In parallel with the occupational exclusivity of the smiths there were also ritual barriers which set them apart from the smelters. For instance, when the LUAN, the iron hammer, of the smiths was being forged no smelter might be present. This exclusion was not reciprocated by the smelters who in certain rituals excluded all slaves and those not born within the chiefdom but did not exclude smiths.

In terms of origin myths a smith might describe BABUNGO as divided into two sets comprising the royal clan and senior titleholders from FOGHAI and smiths from LUNG[19]. The former control the regulatory association, TIFWAN, and are the titleholders with the power to make decisions for the chiefdom. The latter, the smiths, control smithing and from their occupation derived much wealth with which to buy slaves and provide for bridewealth for wives but had no power, "since they were too busy smithing to sit around in the TIFWAN compound".

The relationship between the smiths and TIFWAN was ambiguous. While they accepted its authority, and manufactured the ritual iron sacra that embodied its power

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[18]. However, the majority of smelters were also excluded from the senior echelons of the chiefdom. In other words all senior title holders were smelters but not all smelters were senior titleholders. Smiths had no senior titles.

[19]. These sites are only five miles apart as the crow flies but that, of course, is not the point.

they held none of the senior ranks and titles associated with it. This will be dealt with in a later section on wealth and political power. The smiths saw themselves as a localised occupational group rich in terms of material wealth but mainly excluded from political power. They were not excluded from membership of the political and recreational associations which cross-cut descent and residential groups but only from the upper echelons of TIFWAN, the main regulatory association of the chiefdom.

VOETUEYOE

In the myth of origin of the smiths SONGU, one of the two most senior smiths, used only stone tools at his original settlement site a short distance to the south west of the chiefdom. The introduction of the use of iron tools is attributed to a mythical ancestor of FWANMBU who fell from the sky[20] with an iron hammer. SONGU and FWANMBU are said to have taught seven others to smith and so formed a group of nine smiths whose descendants presently constitute the VOETUEYOE, the senior council of smiths to whom other smiths are obliged to make considerable payments and gifts in order to establish their own places of work.

The VOETUEYOE constitute an association with a defined membership, mode of recruitment, sacra and set of duties and rights relative to its members and other smiths of the chiefdom. The VOETUEYOE provide ritual services for the smiths, mediate between them and the FON and TIFWAN association, and in performances at palace ceremonies they serve to express the ritual separation of the power of the smiths and that of TIFWAN.

Annually, at the end of the dry season, the VOETUEYOE perform a ritual celebration of the tools of smithing. Fragments of the original tools brought by SONGU and FWANMBU are retained and libations of raffia wine are made over these and prayers said for the prosperity of the smiths. Then a calabash of raffia wine, a goat, a cock and some camwood are taken to the original smithing site of the first SONGU. In a parallel ritual to that performed at FOGHAI by the FON and association of grave priests, one of the VOETUEYOE stands naked and pours wine over the stone and rubs camwood there. A fire is made in the original

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[20]. The Fali and Pa'ti iron workers have similar myths as do the Hausa of Ader (Echard, 1965). Interestingly, in the Koran it is said that Adam brought down from paradise five items made from iron including a large and a small iron hammer.

hearth and the cock cooked and the goat slaughtered and divided. The wine is drunk and the VOETUEYOE return to their homes. This ritual is intended as a supplication to the spirit that gave smithing to them so that all the smiths should enjoy prosperity.

The possession of fragments of the original tools of the smiths is associated with the power to swear mortal oaths and utter fatal curses[21]. For instance, if someone made defamatory remarks about the VOETUEYOE he would be summoned before them and given oil, in which the original iron hammer had been dipped, to drink. If guilty, the accused would die. Similarly, the VOETUEYOE might utter a fatal curse on a malefactor by dipping the original hammer in some raffia wine and uttering the curse. The wine was then given it to the victim to drink and he, too, would die.

Theft from a smithy, where valuable tools and materials were commonly left unguarded, was considered a heinous crime. A suspected thief would be taken by the VOETUEYOE to a room in the compound of FWANMBU containing his ancestral stones. A calabash of raffia wine was then taken by FWANMBU and placed on a piece of wood representing the original wood socket. The wine was poured into the socket as an oath was sworn and then returned to the calabash and all present drank from it. If one drank the wine knowing that one was guilty of stealing from a smithy one's belly would swell and death shortly follow. Alternatively, in the absence of a suspect, the VOETUEYOE might simply sit together drinking wine and complaining and this act alone would bring misfortune upon the thief.

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[21]. Similar beliefs are widespread amongst African iron working communities. For instance, Crawhall (1933), writing on the JUR smiths of the Sudan mentions the "strict observance of oaths sworn on the anvil (a rough piece of iron driven into a palm tree buried in the ground) of a dead smith....so firmly established is the superstitious reverence for it that it was not possible to obtain an example of the anvil." See also Chaplin. 1961.

Hence, rather than being set apart con eptually from death and destruction the smiths were, in fact, feared greatly for their powers to curse and utter mortal oaths.

The VOETUEYOE also controlled the establishment of new smithies. They had to be informed before anyone started to build a new smithy. While they could not refuse to ive their blessing they were able to constrain the proliferation of new smithies by manipulating their demands for gifts and payments. The key role they played in this was in the ritual placement of the central stone anvil. After this had been carried by other smiths and placed outside the new smithy the placement was done by the VOETUEYOE in complete secrecy. For this work the VOETUEYOE demanded up to 9000 cowries, one bundle of camwood, ten sacks of fufu, ten calabashes of raffia wine, a very large calabash of palm oil possibly 30 litres capacity, one cockerel and one goat. This represents the demands the VOETUEYOE might make, not what they necessarily asked for nor, even, what they might have received. Actual accounts offered by other smiths differed somewhat from the stated demands of the VOETUEYOE. This suggests considerable room for manipulation by the VOETUEYOE over the costs of establishment of new smithies.

VOETUEYOE, TIFWAN and the FON

In the context of their mediation betwe n the smiths and the political authorities of the chiefdom the VOETUEYOE were thought of as an association whose function it was to transmit and implement decisions concerning smithing made by the regulatory association. In the late nineteenth century such decisions concerned the security of the chiefdom and the production of ironware. For instance, if there was information that the chiefdom was under threat of attack a decree might be issued that the smiths should turn their attention to making rifle shot. Various attempts were made to influence the quality of production of ironware. These included general admonitions to take greater care in teaching their apprentices and to maintain high standards of production so that hoes and cutlasses should not easily get broken. If it was noticed that smiths were making cutlasses and other items of ironware for sale to foreign traders that were superior in quality to those made for sale in domestic markets then orders were issued for this to stop. In a similar vein if it was considered necessary to increase the output of ironware a decree was issued to the effect that smiths should not waste time polishing items but leave that to the purchasers so that the smiths would have more time to produce more ironware.

The VOETUEYOE also administered work done by the smiths both on behalf of the regulatory association and for the FON. For the regulatory association all items produced over the three days customarily set aside for work for the master smiths were collected by the VOETUEYOE but only double gongs were actually passed on. All the remaining ironware was kept by the VOETUEYOE to sell on their own behalf. The FON, who had a trade monopoly in double gongs, might also summon the VOETUEYOE and order these to be made for him. For this work they were rewarded by the FON with goats, palm oil, raffia wine, fufu and camwood. Most of this was kept by the VOETUEYOE but a little was shared out to other smiths who had contributed labour in the manufacture of the gongs.

Ritual Separation

Sorcery

It is said that an early FON "invited" the paternal ancestor of SONGU to come and settle in the chiefdom because of the powerful medicines he possessed. In fact, very few medicines are used in smithing and the "powerful medicines" referred to in these traditions are of a different order altogether. Membership of the NFWEH sub-association of TIFWAN is comprised entirely of the heads of smithing lineages. It uses "powerful medicines" to "lock the roads" against the malicious influence of foreign witches annually at planting time and is also charged with pollution removal. It is important to set this notion of smiths possessing powerful medicines to prevent the extraction of wealth and life essences by external sorcerers against the notion that senior smelters possess medicines to do exactly the reverse, ie. to extract wealth and fecundate the bloom in the furnace. The ethos of cooperation and sharing discussed above in relation to these smelting medicines did not include the smiths of the chiefdom. This taken together with the role of the smiths in protecting the chiefdom against external sorcery implies that these same medicines served to protect them from the draining out of fecundity by the medicines of the smelters.

TIFWAN Sacra

The VOETUEYOE, in concert, would claim to be TIFWAN since they were in charge of making the sacra, the double gongs and other items, which embodied the powers of the regulatory association. Alone among all the associations of the chiefdom the VOETUEYOE claimed that the FON had no automatic right of entry to their meetings. If anything had to be done with the sacra of the TIFWAN association the VOETUEYOE had to be consulted first.

When a double gong was being made in the smithy of one of the VOETUEYOE a spear was placed in the ground on the path leading to it. This signified that no one bar a smith might enter the smithy, even a member of TIFWAN who was not a smith could not enter. When double gongs were being made on behalf of TIFWAN or the FON the black NKO masker would appear and sit on the stone anvil, make its customary guttural sounds and leave. The black NKO, its legs rubbed with the black dust and ashes of the smithy floor, represents the power of the smiths. The act of sitting on the central stone anvil whose sacred aspects and powers were such that for any mortal, including a smith, this would prove fatal, further represented the supernatural power of smithing as a force above that of the FON and TIFWAN. Its powers were not, however insuperable. No prince might enter any smithy where double gongs were to be made since it was feared that the unconscious powers of witchcraft of the prince would act to make the joining of the two halves of the double gong fail.

Palace Ritual

This ideological separation of smith and smelter is given symbolic expression in the course of palace celebrations which the VOETUEYOE along with all other associations within the chiefdom were obliged to attend and perform in dance or procession. As the VOETUEYOE arrive in the dancing field tapping their iron hammers together, those playing the music of the TIFWAN gradually work up to a feverish crescendo in a dramatic bid to drive away the smiths. It is feared that the smiths are coming to kill the TIFWAN, since the iron hammers "delivered" TIFWAN, ie. the smiths used them to manufacture its sacra, and now "the mother of the child is coming to kill it".

The smiths place their hammers under the huge tree that dominates the dancing area and then enter the TIFWAN compound. All activity has to cease until the hammers are removed. The red and black[22] NKO maskers emerge with MOBU, the feathered executioner[23] of TIFWAN, and approach the hammers. The black NKO goes to take the hammers from under the tree and the red NKO and MOBU flee back into the TIFWAN compound, since if the black NKO were to point the hammer at them they would die. The masks of TIFWAN represent its public aspect and the presentation of the NKO masks constituted a symbolic public expression of the tensions and stresses inherent in the structure of TIFWAN and its relations with the smiths.

These black and red NKO masks represented respectively the smithing and smelting elements of the chiefdom. The

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[22]. The red NKO represents the smelters of the chiefdom with its legs rubbed with camwood, the black NKO represents the smiths and its legs are rubbed with ash from the smithing hearth.

[23]. MOBU not only played the role of executioner by casting those guilty of offenses against TIFWAN into a deep pit in a sacred forest but also had the task of attempting to reconcile warring factions within the chiefdom that were in serious dispute.

"black NKO" was a member of a smithing lineage, and the "red NKO" a member of a smelting lineage. Both figures were entirely covered with the leaves of the "INKOE" plant, except for the head on which was placed a woven cane basket covered with goatskin to which two shells of the large African land snail were attached. The masks were differentiated by the colour of their legs. Those of the black NKO were smeared with charcoal and ash from the smithy, while the red NKO was daubed with lime and camwood.

In public performance each NKO was "restrained" by two "NCHINGII-NKO", ie. "servants of the house of NKO", by means of ropes of NJUUSOEKONG[24] wrapped around the waist of the masked figure. The two "servants" of the black NKO were both smiths, while the two for the red NKO were made up of one smith and one smelter. These "servants" of NKO make vain attempts to control the mask as it rampages around the dance field striking awe and terror into the onlookers. Running behind each of the NKO masks are a group of young TIFWAN recruits carrying switches with which they beat other youths present in the dance field. It is unclear both from contemporary observations and also the accounts of elderly informants whether these young TIFWAN recruits were differentiated in any way.

The black NKO is considered more powerful than the red since it is very closely associated with the sacra of TIFWAN, which is seen as the "strongest thing in the chiefdom", and it may be called the "NKO TIFWAN". Conversely, the red NKO is strongly associated with the FON and may be referred to as the "NKO-FWAN". The black takes precedence over the red when the two appear together in the course of a major mortuary celebration[25]. The two dance on

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[24]. ie. KOM cloth.

[25]. In fact, the two masks only appeared to ether at the mortuary celebrations of "royals" and titled commoners of the chiefdom, ie. those of the FON and his agnates and the VOETUGHAU and VOESHUU. For untitled commoners, whether smith or smelter, only the black NKO performed.

the field at the same time and a calabash of wine is kept in the centre for them. On such occasions it is always the black that first approaches and kneels before the wine, drinks a little and then throws some over his head before the red follows and performs the same actions.

The black NKO is firmly associated with smiths, smithing, the sacred forging hammer of the smiths and the manufacture of the double gongs of TIFWAN. Its power is ambivalent since, while it may remove the sacred iron hammer from the dance field so as to allow celebrations to continue, it may also use this hammer to "kill" MOBU and the red NKO. This ambivalency of the black NKO matches that of the conception of the smith as "the father coming with the hammer, as the mother, to kill the child," which is both the sacra and the association. The ritual performance of the black NKO expresses the dangers inherent in the relations between smiths, the manufacture of the TIFWAN sacra and the TIFWAN association, itself.

Implicit in all of this is a symbolic representation of an conceptual duality between, on the one hand, the FON, the "royal" clan, titled commoners, smelting, unity and integration of the chiefdom, camwood and peace, and the ritual and mystical attributes of the chieftaincy and, on the other hand, TIFWAN, untitled commoners, smithing, ashes and war, social control and the exercise of authority:-

Red Nko	Smelters	FON	Royal	Camwood	Peace
Black Nko	Smiths	TIFWAN	Commoner	Ash	War

The two NKO may be seen as representing each side of this duality. The red NKO closely linked to the FON and smelting, termed NKO-FWAN, is juxtaposed with the black NKO, termed NKO-TIFWAN and, even sometimes, NKO EYOE[26], and closely linked to untitled commoners and the implementation of the authority of TIFWAN. The inclusion of a smith among

[26]. ie. the NKO of smithing.

the two servants of the red NKO may serve to represent an element of dependency that binds the smelter to the smith. The relations between the opposed elements of this conceptual duality are expressed in the ritual interplay between the two NKO on the palace dance field[27].

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[27]. There are some striking parallels between this ritual performance of the BABUNGO NKO maskers and that described in a somewhat different light in terms of the political economy of incorporation by Diduk (1987) for the two NKUH maskers of Big BABANKI. In this chiefdom one NKUH holds two white sticks and personifies the chiefdom while the other, termed "the child for KWYFON", holds two black sticks and represents the stranger population. As in BABUNGO there is a symbolic expression of antipathy between "black" NKUH and the regulatory association. However, in BABANKI the "black" NKUH makes a show of avoiding KWYFON since it is being treated like a slave. One wonders what elements of the BABUNGO performance would have persisted had, as in the BABANKI chiefdoms, the large scale mode of iron production with separate smithing and smelting ceased.

Economic Integration

A smith either purchased bloom directly from the foundry, or market or took it on credit to be repaid when he had made and sold his ironware. Bloom was sold openly in the two main BABUNGO markets, broken in pieces in special baskets called "KEH". It could not be sold openly in the form in which it emerged from the furnace, ie. as a solid block, since in that form it was considered to be "KOHNYWI", ie. a gift of spirit, and as such was the rightful property of the FON and liable to seizure by the TIFWAN mask "MENAI". There were no specialist middlemen trading in bloom, it was sold only by those who had produced it or their senior kinsmen. Informants claimed that strangers did not buy bloom since they would not know how to use it. However, the sheer bulk of the bloom and the low return of usable iron may have deterred smiths from nearby chiefdoms. However, smiths from BAMESSING, who used an open hearth furnace to resmelt old slag did come to BABUNGO to buy the smithing slag called "SAH" that remained in the smithy hearth after the bloom had been shingled. It was considered worthless by BABUNGO smiths and sold by them either directly from the smithy or in the market place. Ordinary slag was not sold due to the strong prohibition against selling to strangers the small particles of iron, found embedded in the slag close to the central blocks of bloom, that were used as rifle shot. To sell this was an act of treachery, punishable by death, but there was no prohibition on the sale of spears and cutlasses.

Nominally, smelters accepted only cowries for bloom but in practice it was exchanged against a wide range of other goods. There were two conditions upon which such exchanges depended. The commodity to be exchanged for bloom had to be high in value and low in volume and an item which was readily convertible to cowries. In all exchanges the respective values of the bloom and the commodity to be exchanged were estimated in terms of their value in cowries and any difference settled by topping up with cowries. The most common exchanges against bloom involved cowries, palm oil and ironware for trade. The exchange of bloom against exotic prestige goods such as guns, cloth, beads and slaves was also highly stressed. The range of goods that a smelter might accept for his bloom depended not only on immediate needs but also according to the extent to which he was prepared to engage in further trade to convert the goods into cowries.

A smith might also take bloom on credit. Smelters preferred to receive payment in lump sum rather than piecemeal. This required the deposit of some token of value such as cloth or beads to be reclaimed after the smith had made and sold his ironware and returned to pay the smelter in full.

Bloom was highly valued, partly as a short term store of value but more importantly for its convertibility into cowries and other trade goods. For these reasons it was widely accepted in lieu of cowries in bridewealth payments, even by non-smiths. Informants stressed this use of bloom was common in their fathers' generation but their own use of bloom in bridewealth payments was only as a top up to the basic payment of cowries. Ironware, such as hoes and cutlasses, was also used in this way. Clearly, the economic integration of smith and smelter depended to a great extent on the external world and the two spheres were mediated by the cowry shell, all exchange values being expressed in cowries.

In this system the smelter enjoyed considerable advantages since, although he cannot sell his bloom directly in external markets in exchange for cowries or other trade goods, he demands precisely such forms of payment from the smith. Smiths were able to engage to a limited extent in external trade but it was seemingly more common for specialist foreign traders to come and commission smiths to make particular items of ironware to be collected and paid for, in cowries or whatever, at a later date.

THE OKU IRON INDUSTRY

Introduction

In order to understand what comparative advantages BABUNGO derived from the organization of its industry and technology, iron working in neighbouring OKU will be briefly examined. Data on the OKU industry was obtained through interviews with elderly informants operative in iron production in the early part of the century, from the observation of derelict workshops, debris scatters and "ore" sources, and also from unpublished colonial accounts[1] and work done by Jeffreys[2].

OKU was a major centre of production at the end of the nineteenth century employing open bowl furnaces to recycle slag. Informants in nearby chiefdoms ranked its importance second only to BABUNGO. Iron production was probably its major source of wealth with the bulk of its products traded to NSO in exchange for goods such as cloth, salt and tobacco. The master iron workers, the BAKOELAM, enjoyed high social esteem second only to the FON and senior elders. The FON, himself, was a BAKOELAM and when he died he was buried with a used OKU hoe.

There was no absolute division of labour between smithing and smelting in OKU to parallel the organization of the industry in BABUNGO. All work was done in one place, the KOELAM, using a single open bowl hearth albeit with one specialist smith finishing off the final forging of ironware. In the immediate precolonial period OKU iron workers smelted only old slag and did not use true iron ore. The reduction of this slag was done in the same hearth that was used for shingling the bloom and also forging the ironware. OKU iron workers were not localised but scattered throughout the chiefdom and, unlike BABUNGO, both commoners and princes participated in all

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[1]. Drummond-Hay, 1925.

[2]. 1942 and 1962.

elements of iron production. OKU iron workers were not excluded from the upper echelons of the regulatory association, KWIFON, which appears to have played no controlling role vis à vis iron workers or iron production. There was no association of BAKOELAM who only met as a group when a new workshop was constructed.

The FON of OKU was said to control iron working in so far as his permission was required to establish a new workshop. A prospective BAKOELAM had to take two calabashes of wine to the FON and formally request his permission and then the first two hoes to be made were sent to the palace. No other payment or gift was required. However, the FON might command work on his behalf at any time by sending a young palace retainer with a calabash of wine and some food to a workshop, with the message that these things should be given to the BAKOELAM to entertain the iron workers. In return, up to three hoes would be sent to the FON. The FON had his own workshop[3], operated by palace retainers, which was similar to other KOELAM, save that it had two doors instead of one, one door reserved for the use of the FON. Once or twice a year each ward of the chiefdom was requested to go and prepare charcoal and carry it to the palace. Palace retainers were sent to dig and fetch the old slag to be smelted. The FON gave the ironware produced in his KOELAM to specialist traders to take and sell and return and hand over a sum of cowries representing a fair profit.

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[3]. This can still be seen, in a state of disrepair, before the palace.

Establishing a KOELAM

The OKU workshop was unlike either the BABUNGO foundry or smithy but very similar to workshops found in ACHAIN, both Big and Small BABANKI, MME and BAFUM[4]. It was unpaved, with a unbeaten earth floor, square in plan, and had a lightweight loft platform where tuyères were stored and dried. Other materials were kept on the floor. It was similar to an ordinary OKU dwelling but smaller and required less work for construction. Unlike the practice in BABUNGO no iron anvils were used to forge iron in OKU, only a small stone anvil; also there was no grooved stone anvil for forming blades or spear sockets. Generally, the OKU tool assemblage[5] appears to reflect its relatively lower engagement in production of a wide range of ironware for external markets.

For the OKU furnace a pit was dug c.3ft deep and 5ft across at the top tapering at the base and lined with basalt stones plastered with mud mixed with wood ash. There were three depressions around the perimeter of the bowl. A deep depression for the tuyère to be placed directly into the hearth with charcoal piled on top. Facing this was another gap through which an iron spatula could be inserted into the hearth in order to rabble the bloom, rake the charcoal together and unblock the mouth of the tuyère from adhering slag. Between these two gaps was another where the specialist smith[6], the WUULEHTUYIN, might heat up the iron that he was forging on the stone anvil. Informants claimed that once built the hearth never needed repair and even the plaster on the basalt stone lining was

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[4]. Baumann and Vajda, 1959, reporting the much earlier work of Ankermann. It is unclear whether BAFUM here refers to BUM, MME, or ESU.

[5]. See OKU Tool Inventory, next section.

[6]. This member of the workshop personnel took no part in smelting but only forged ironware.

not redone.

The final task was to summon junior lineage kin and request neighbours and friends to help in carrying the two large stone anvils for the workshop. For this it was necessary to prepare a great feast of wine, fufu and fowls to serve to those carrying the stones. A wealthy BAKOELAM might kill a goat and roast it in the hearth of the KOELAM but no sacrifice or libation was made to or on the stones. The large central stone anvil, the NGO-KOELAM, was carried, as in BABUNGO, by means of ropes attached to poles, with knotted leaves of elephant grass attached to drive away devils, and with 5-10 people in front and the same number behind bearing the load on their shoulders. A hole would be dug in the floor of the KOELAM in which the stone anvil was placed to keep it firm. This was not the subject of a secret ritual performed by master smiths as was the case in BABUNGO. The stone sometimes required to be shaped using extremely hard round stone hammers and it was occasionally heated first to make this task more easy.

Once the central stone anvil and also the smaller forging anvil were in place one was known henceforth as BAKOELAM, and the main feast might commence. As in BABUNGO, the first and largest share of the items of food and drink were offered to the established BAKOELAM, <u>all</u> of whom should be present. In effect, they were given special gifts of meat to take home to their wives, and wine to fill their own calabashes, and then they would sit and join in with the general feasting.

Before iron production might commence it was necessary to gather and prepare medicines for the workshop. Pounded cocoyams, ground egusi and a quantity of raffia wine were taken into the workshop and a pre-pubescent girl called inside. A special calabash, used for sharing wine, was taken and placed in the small basket used for measuring slag and then placed on the head of the girl. The party set off into the bush with one man at the head followed by the girl to seek out the "medicines" for the KOELAM. These were simply samples of all the different leaves that they came across as they walked and the goal was to fill the basket. As each leaf was cut a libation of wine was made and a short prayer uttered :-

> "Oh God, as we are cutting this leaf
> You are the one cutting it for us
> We will go and prepare it for good
> fortune for us and all of OKU."

There are interesting parallels between this ritual and that performed in BABUNGO for the collection of similar "medicines" buried in a pot beneath the BABUNGO furnace. In the OKU ritual, however, when all the leaves had been collected and the remaining wine and food consumed, they were taken back to the workshop to be burnt at the base of the hearth at the commencement of the initial smelt. If at any time there arose problems in producing good blooms or hoes were getting cracked then it was necessary to repeat the ritual of gathering the leaves and burning them in the hearth.

OKU Tool Inventory[43]

ITEM	DESCRIPTION
Iron Tools	
MBEH-KOELAM	Iron hammer for forging hoes,etc., on the IBUU anvil. Two blocks of bloom were smelted for this, while three were required for a hoe. A BAKOELAM invited neighbours and other iron workers to assist in making this tool but there were none of the sacred and mystical elements associated with it as in BABUNGO. It was stated by informants that the first man, who began iron working used a stone tool to prepare his MBEH.
KOENFIAK-MBEH	Smaller, lighter iron hammer used to make MBEH, also for light work such as finishing edges of hoe so as not to crack it.
MBANG-KOELAM	An iron shovel or spatula like tool used for turning bloom in the hearth and unblocking mouth of tuyère of slag.

[43]: The iron, stone and wooden tools of the OKU KOELAM were less numerous and less elaborate than the sets of tools found in either the BABUNGO foundry or smithy.

ITEM	DESCRIPTION
Stone Tools	
NGO-KOELAM	Central stone anvil for shingling bloom and forming rough shape of ironware.
IBUU-KOELAM	Stone anvil for forging final shape of ironware with the iron hammer.
NCHEM	Small rounded heavy stone hammer, held with two hands and used for rough shaping of iron on the NGO-KOELAM.
ITEH-KISSA	Grinding stone for breaking up old slag to be smelted.
ITEH-KISSA KOENEH	Hammer stone for grinding old slag.
Wooden Tools	
KOENUK-KOELAM	Carved container for water, no designs.
KOEMBAATEN	Long, thin stick thrust down tuyère to clear it of blockages.
MBANGUPSUS	Bellow sticks.

ITEM	DESCRIPTION
Others	
KOEGHEN	Bellows, similar to those in BABUNGO.
GWOSHOE	Skins for bellows.
KIWYESS	Maize-cob leaf water sprinkler.
KOEYUNG	"Connector"(lit), for joining bellows to tuyère.
KOELOE-KISSA	Measuring basket for old slag.
KAAKOENYOEK	Basket for pouring charcoal into hearth.
MBANGSOEKII	Basalt stone lining for hearth.
SONG-KOELAM	Clay tuyères.
KOE-YII'NTEN	Bloom.

Note that the "OKU" bellows depicted in Emonts (1927) are not from OKU but actually resemble closely those depicted by Maes (1930) for the Mosengere of the Lake Leopold region.

Mystical Sanctions

The punitive mystical sanctions associated with theft from a workshop were not linked in OKU with the iron hammer, as in BABUNGO, but with the leaf "medicines" burnt in the hearth. At the juncture that these leaves are burnt a curse is cast :-

> "This is a medicine we are burning and if any person takes property from here that does not belong to him then he will go and suffer from an incurable swollen belly, and die."

Accordingly, all tools, material inputs and any other property might safely be left in the workshop. Similarly, the central stone anvil was not the focus of sacrifices and libations and no medicines were buried beneath it as was done in BABUNGO. In OKU it was the open bowl hearth and leaf medicine burnt in it that provided this focal point.

Organization of Work

Iron working was most intensively done in the rainy season since, according to local informants, in the dry season men were too busy building and repairing houses and also clearing farms in preparation for planting. However, even in the rainy season an OKU workshop would, unlike a BABUNGO foundry or smithy, not be in use for considerable periods of time when the labour force were out busy making charcoal or going on expeditions to gather slag.

Other constraints on production centred on mortuary rites and also the KWIFON regulatory association. If an adult or a child died in the ward where the workshop was located they stopped work on the day of the burial. On the second day they went to commiserate with the mourners and on the third day recommenced work. When a FON died work ceased for the duration of the death celebration, a period up to two weeks[4]. If a queen or a prince died in another ward work was unaffected. When the regulatory association left the chiefdom to go and celebrate the death of another FON, then no work might be undertaken until its return.

In contrast to smelting in the BABUNGO there were no sexual prohibitions or required sexual continence for OKU iron workers and any male or mature female was free to enter the workshop.

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[4]. 16 days.

KOELAM Personnel and Labour Recruitment

The key personnel were the BAKOELAM and the WUULEHTUYIN, the remaining workers were simply called the GHOELEHSOESOE-KOELAM, ie. the people pumping the bellows. The BAKOELAM was the master of the workshop, and the WUULEHTUYIN was a specialist smith who worked only on forging and finishing ironware on the small forging stone anvil. Other workers were either close lineage kin of the BAKOELAM or co-resident in the same ward. In complete contrast to the organization of work in BABUNGO, non specialists in OKU contributed both labour and material inputs in return for ironware. The actual forging of ironware was still restricted to the specialist smith, the WUULEHTUYIN, but all other tasks might be done under the direction of the BAKOELAM by unskilled labour. It will be shown below that only a small portion of the total range of ironware produced in OKU was sold, most items only being obtainable through gifts from the BAKOELAM rendered in return for the provision of labour both in the smelting process and in the arduous tasks associated with the gathering of material inputs.

BAKOELAM

A BAKOELAM had either built and equipped the KOELAM or succeeded to a lineage headship in which the title was vested. He sent his sons and junior lineage kin to work in the KOELAM, and others dwelling in the same ward who came to work there would be given equal treatment. Ideally it was thought that a BAKOELAM should know all aspects of the work and in most cases he would have been a WUULEHTUYIN before succeeding to his father's titles or establishing his own KOELAM. He derived wealth from his position in a number of different ways. Non kin coming to use the KOELAM under his stewardship would dig their own old slag and prepare their own charcoal but in sufficient quantities that there was always some left over at the end of the day. This was put aside in one corner of the KOELAM for the use of the BAKOELAM. He also received part of the bloom that had been produced. At some point the WUULEHTUYIN would come to the BAKOELAM and say that there were sufficient materials and ask what he should make for him. A quantity of bloom would be prepared by whoever was working in the KOELAM at the time and WUULEHTUYIN would forge the requested ironware and be rewarded by the BAKOELAM with a gift of food, wine and, perhaps, a fowl. Generally, sufficient bloom for one hoe would be set aside for the BAKOELAM in the course of two sets of people each working up to three days in the smithy.

At other times those people in the ward who worked occasionally in the KOELAM would be asked by the BAKOELAM to go and collect old slag and prepare charcoal for him. This would be done freely in the knowledge that by so doing access to the KOELAM and its equipment and the skills of the WUULEHTUYIN would be obtained and, also, that items of ironware not traded in the market might be given them by the BAKOELAM in return for their assistance. Further, as the owner of the KOELAM, the BAKOELAM might simply ask anyone working in his KOELAM to help make him a hoe, cutlass or whatever.

WUULEHTUYIN

This specialist smith took no part in collecting old slag or preparing charcoal, nor did he pump the bellows or involve himself otherwise in smelting the bloom. His sole tasks were to forge hoes, cutlasses, spears, etc., on the small stone forging anvil where he worked permanently. This was considered to be the most difficult and skilled work in the OKU KOELAM. There was only one specialist smith for each KOELAM, and he was not necessarily a son of the BAKOELAM. In such a case he would stay in his own compound. He did not sleep in the KOELAM and was not required to be celibate as was the case with the WOENFIIBUU in the BABUNGO foundry. An apprentice that was seen to be able to forge ironware in the correct form, without mistakes, might become WUULEHTUYIN in a new KOELAM or take the place of another WUULEHTUYIN in an established KOELAM.

A WUULEHTUYIN was well recompensed for his work and was in no way like a slave to the BAKOELAM. If the BAKOELAM had a male slave he might train him to be a WUULEHTUYIN but he would only work as hard as a non slave and, it was claimed, he would be treated equally with freeborn members of the chiefdom. The rewards that he received for his work were considerable. For instance, if asked by his BAKOELAM to make two hoes he would be given materials to make three and would keep one hoe for himself. However, smithing might not necessarily be his sole occupation and he would certainly not work every day in the KOELAM. On rest days and when the workers of his KOELAM had gone to collect slag or prepare charcoal he did no work. Some WUULEHTUYIN kept bee hives for honey and others were hunters since there might be no work in the KOELAM for up to a week or more while people were busy gathering material inputs.

Apprenticeship

The accounts offered by elderly informants of learning to smelt and later to forge iron as a WUULEHTUYIN illustrate the extended and diffuse nature of apprenticeship. A youth apprenticed to a non kin BAKOELAM would approach him and be asked to bring a fowl, some cooked food and also wine with which to feast the workers in the smithy. When it was seen that he had learnt the work well he would be asked to repeat these gifts. When, finally, he had become proficient in the work he would be required to give the first hoe that he made to the man who had taught him. Nothing more would be done after that and he might simply continue to work in the KOELAM.

The Process of Manufacture

Material Inputs

Fuel

No dried wood chips or elephant grass stalks were used in OKU iron production, only charcoal proper, which was not sold but only made by the iron workers themselves or brought by someone wishing to exchange it for a hoe. In such a case the individual bringing the charcoal would also have to help in pumping the bellows and loading materials into the hearth. A party of 10 to 15 men went together to prepare charcoal. These would be all the men from the compound of the BAKOELAM and, also, people from their ward who used to work in the KOELAM would be invited to come along and help. The group worked together to fell a very large tree and then individually prepared the charcoal. Each dug his own depression in the ground and burnt the wood for c.4 hours before covering the heap with soil. The work was done over two days giving sufficient charcoal for the manufacture of one hoe. It seems likely that the lower heat efficiency of an open bowl recycling furnace was offset by the savings in combining smelting and smithing simultaneously in the same heated hearth.

Old Slag

In the immediate precolonial period only old slag, termed KISSA-OKVU, was smelted in the OKU open bowl furnace. It was recognised as slag by OKU iron workers on the basis of fragments of tuyères and baked clay that they came across when digging it out. It was collected from many sites most of which by this time were over one days' journey from the main areas of settlement. One major site was NTURR, on the far side of the OKU massif overlooking the Ndop plain, where BABUNGO traditions suggest iron smelting may have ceased in the last quarter of the 18th century.

Parties of 10 to 15 men, recruited as for charcoal making, went and gathered the old slag and carried it back to OKU. If, after trying out slag from a particular location, it was found to yield well they would return again to the same site. To get sufficient slag to make a hoe it was necessary to go and carry it twice[5]. In the German period OKU iron workers began to use natural ores, termed KISSA-IRGHAK[6], in addition to slag. The story is told how a woman from another chiefdom married to an OKU BAKOELAM, saw this ore while farming and suggested to her husband that he should try it. The BAKOELAM discovered that smelting a mix of ore and slag together yielded half as much bloom again as smelting slag alone. Ores were dug from the ground in shallow depressions in the form of rounded pellets, like a gravel. They also went in groups for it but since it was available locally it took only one days work to dig and fetch it. The ore was left to dry for up to two days so that it could be separated from adhering soil. It was then broken up into pieces of a

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[5]. This may be an error in which case the labour productivity of the OKU industry must be revised upwards.

[6]. Also called KISSA-BWA, and MBON. Samples of ores used by BABUNGO smelters were taken and shown to OKU iron workers by the researcher who claimed that this was the kind of ore they started to use.

size c.2cms^2 similar to the way old slag was treated and was then ready to be smelted.

Smelting and Forging

The furnace was lit with embers from the house of the BAKOELAM, and charcoal piled on top. An equal volume of ore and slag, in a single charge, was placed on top of the charcoal and more charcoal added as the smelt progressed. A series of two to three smelts, each of c.3 hours duration, was necessary to produce sufficient bloom to make one hoe. These individual smelts were continuous and new slag produced was not removed until the entire process of making a hoe was complete.

The volume of slag, left to cool overnight, was variable but a block up to half a metre across might be removed from the base of the hearth. One such block found adjacent to the KOELAM of an informant was $0.07m^3$[7]. The slag was thrown on one spot but there appear to be no heaps of slag in OKU on the scale to be seen in BABUNGO. Informants claimed that other organic debris from the KOELAM discarded with the slag decomposed into soil that covered the blocks of slag. Accordingly, black soil was said to be the best indicator of the debris from an OKU KOELAM. In recent times, however, slag has been used in house construction and this may partly account for the absence of heaps of debris.

The bloom removed from the hearth was cleaned of adhering ash and when all three blooms were prepared they were reheated till red hot and hammered together on the central stone anvil in a process which removed slag from the bloom. The shingled bloom was then reheated and welded to a long iron rod that was used to hold it while hammering it into the shape of a hoe. It was then transferred to the small forging stone anvil where the specialist smith worked the iron into its finished form.

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[7]. This is only a little less than the average volume of slag that was estimated to have been produced in the course of a BABUNGO smelt.

Products

It was stated by OKU informants that many BAKOELAM made only hoes and no other items of ironware and four out of five listed KOELAM for one central ward specialised solely in hoe production. This was said to be a response to the demand for hoes from NSO both for its own use and for trade with NKAMBE and other northern areas. Traders from NSO were said in the precolonial period to have come to buy hoes in "dozens"*. Specialization in hoe production may also have been related to the use of hoes as the major part of OKU bridewealth payments.

Unlike BABUNGO, where a number of hoe types were made for export to different markets in the region, in OKU only one hoe type was produced. This is reflected all through the range of OUK ironware production. Most significantly, only a small portion of the total range of items produced in an OKU smithy were sold the bulk of ironware being acquired through informal gift exchange with the BAKOELAM or through contributing labour in the workshop.

*. Actually "dozens" in the context of Grassfields trade means tens.

OKU Ironware

FEHOKUU	OKU hoe, socketed, in various sizes. Used for bridewealth, 5 hoes p.a. for three years, plus 5 goats. Sold.
FIAKOKU	Cutlass, one type only used for display, warfare, general purposes. Sold.

Spears

IWUNG-NJACK	Barbed hunting spear, also used for warfare. Sold.
IWUNG-EKUM	"Kom" spear, unbarbed for travelling. Sold.
KEHDJUNG	Ornate walking spear for men. Sold.
KEHDJUNG-MEHLEH	Ornate spear with bells reserved for use by senior titleholders. Not sold.
MBANG-KEHDJUNG	Butt tip for walking spear. Sold

Knives

FEHFIAKOELUMEN	Mans' knife for general purposes. Sold.
FOEFIAKOE'OEKII	Womens' farm knife for digging up yams, cleaning hoes, etc. Also called FIAKOEPKAN. Not sold.
FOEFIAKOEPLANG	Small, womens' knife for peeling cocoyams, etc. Various sizes. Not sold.

ITEM	DESCRIPTION
Bells	
MBEHLISSOEWAN	Childs' anklet bell worn from one year on to encourage walking. Not sold.
MBEHLOEBWOE	Dog bells for hunting. Not sold. Only as a gift to a hunter but BAKOELAM would expect some meat in return.
MBEHLE'ETWIUM	Worn by KEBAI titleholders on raffia bags. Copied from Bamum brass workers. Not sold.
NGEN	"KWIFON" double gongs, different sizes. Made only in FON'S KOELAM, so sale controlled by him.
Axes	
NJAMOEKISSA	Large axe for splitting wood for charcoal. Called NJAMOENJACK when used for cutting firewood. Sold.
FEHNJAMEPTOK	Small axe used for cutting grooves and sockets in bamboo for building. Not sold since mostly used in OKU, might be given in return for help in making charcoal or collecting old slag.

ITEM	DESCRIPTION
Craft Tools	
KOENCHUUF	Chisel for carving stools. Not sold.
KOENKOM	Tool for hollowing out logs to make a drum. Not sold.
KOENLEEK	Blackening tool. Not sold.
KOH	Boring tool kept in KOELAM. Not sold.
NTOHKOE	Tool for basket weaving. Not sold. Only as gifts to women since baskets used for food.
TASS	Very large needle for stitching up woven mats and raffia bags. Not sold.
Tapping Tools	
NCHIEFYILUK	Socketed tool, like a small hoe, used for cutting away area of raffia palm for tapping. Not sold. Only a gift but BAKOELAM would expect two calabashes of wine in return.
MBEHYILUK	Tool for cleaning tapping area. Not sold. As above.

ITEM	DESCRIPTION
IKEM KITUU	Razor, like a small knife. Not sold. Given to woman asking for one to shave head of newborn infant.
NCHAKSEH'IKOI	Arm bangles for small children to cure scabies. Not sold.
IWUNGOEVUSS	Shot, lit."spears of fire", different sizes for different guns. Sold only to OKU people not sold to strangers.
KOENGWAIA	Tool for striking flints to make fire. Not sold. Exchanged in return for small gift.
KOENTASS	Spoon, with cutlass type handle, for removing oil from calabash. Not sold.

CONCLUSIONS

Introduction

In order to highlight the major factors that promoted the high levels of BABUNGO iron production and place this in its regional context three topics will be reviewed. Firstly, the relative labour productivity of the BABUNGO industry will be compared WEH and OKU. Secondly, conclusions will be drawn from the various modes of organization and recruitment of labour and provision for access to capital equipment and skills. Thirdly, the forms of specialization in iron production current in the Grassfields at the end of the nineteenth century will be looked at in order to gauge the constraints these may have had on the ability of the various systems to respond to changes in external demand for ironware over time.

Comparative Labour Productivity

WEH

Jeffreys[1] observed the entire process of smelting iron ore to the manufacture of a hoe in WEH, c.40 kilometres to the north of BABUNGO. The smelting technology centred on a small free-standing cylindrical furnace with a single set of twin bellows supplying forced draught. Over 8 hours of smelting a total of 34lbs of low grade limonite ores, mixed with slag and clay "fluxes", plus 4 baskets of charcoal were consumed in order to produce a single bloom weighing 4.5lbs. Seven blooms were required to produce one hoe weighing 4.5lbs, which was also the approximate weight of a BABUNGO, "SOVOENGO", hoe. On the occasion that Jeffreys observed the process another 2lbs of forgeable iron were recovered.

This represents a return of only 13% of unshingled bloom from the mixed charge of ore and slag. From the 7 blooms weighing a total of 31.5lbs only 6.5lbs of forgeable iron was recovered, ie. only 21% of the bloom was usable. In BABUNGO a much higher return of unshingled bloom was obtained. Jeffrey's 1942 report suggests two blooms, each weighing c.40lbs[2], were recovered from a total charge of 120lbs of ore. This represents a return of c.66% of unshingled bloom from which c.26lbs[3] of forgeable iron were obtained, ie. 33% of the bloom was usable.

Analysis of samples of the low grade limonite ores apparently used at WEH showed an actual iron content of

[1]. 1942.

[2]. This weight refers to the integral blooms and not smaller pockets of bloom broken out of slag by youths assisting in the foundry.

[3]. There was consensus amongst informants that each bloom yielded sufficient forgeable iron to make three BABUNGO hoes each weighing c.4.5lbs.

18.7%[4]. No analysis was made of the two ore types supposedly used in BABUNGO but the Executive Engineer's addendum to Jeffrey's report indicates that the theoretical content of haematite ores is c.70% and of good quality limonite ores it is c.57%. Analysis by Zacharias of Goethite ores used in the Ndop plain area indicate a high FeO content up to c.75%.

At the technical level it is possible to perceive a clear superiority in BABUNGO iron production that relates to the large volume of the charge of ore and fuel over the course of a single smelt and the recovery of a higher percentage of unshingled bloom. This may be explained in part, at least, by the use of higher grade ores but it seems likely that the capacity and thermal insulation[5] afforded by the BABUNGO clump furnace was also significant.

In terms of labour productivity the BABUNGO iron industry was more than eight times as efficient as that of the chiefdom of WEH. In BABUNGO c.6.5 man/labour days were

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[4]. This is very low quality in comparison with the higher grade Goethite limonite ores used in the Ndop plain. The detailed observations made by Jeffreys seem to indicate that this was ore that was actually about to be smelted and not tailings. It is not clear, however, how homogeneous this ore may have been and Jeffreys sample was probably quite small in volume and so not necessarily representative of the overall quality of the ore.

[5]. At present there is no direct evidence as to the temperatures attained in the BABUNGO furnace. Recent work on African smelting technologies (Merwe, N.J. van der, and Avery, D.H., 1982) has suggested that a pre-heated airflow enabled temperatures of c.1800°c in association with a reducing atmosphere to be achieved by Buhaya smelters giving a direct yield of medium to high carbon steel. However, the point has not been emphasised sufficiently that any advantage entailed in this was immediately lost when the Buhaya smiths proceeded to completely decarburise this steel by heating it in the hottest most oxidising area of the forge hearth. It appears to have been common for bloom extracted from the furnace as steel to be largely decarburised during forging (see Todd and Charles, 1978). For a much earlier discussion of the relationship between airflow and carburisation in Sub-Saharan smelting see Achinard (1884).

required for the production of a hoe weighing 4.5lbs. In WEH, Jeffreys observed that it required 54 man/labour days to produce a hoe of similar weight. Gathering the ores and fuel, and the smelt itself, in order to produce a single bloom, were recorded by Jeffreys to entail 7 man/labour days. The production of sufficient forgeable iron for a single hoe required seven such blooms and another 5 man/labour days were required for forging the hoe.

OKU

In OKU a three hour smelt by two to four men produced a bloom weighing 6lbs and two to three of these blooms were needed to make a single hoe, ie. c.30% of the bloom represented usable iron. One man worked two days to get sufficient charcoal for the production of one bloom. A minimum of four days were required to trek to the deposits of old slag and dig and carry back sufficient materials for a hoe. Three men worked for one day to forge the hoe. Hence, this industry entailed a total of c.15 man/labour days to produce a single hoe.

Table 9

RELATIVE PRODUCTIVITY

	WEH	OKU	BABUNGO
% Return unshingled bloom from charge	13%	?	66%
% Return forgeable iron from bloom	21%	30%	33%[6]
Man/labour days to produce hoe	54[7]	15	6.5

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[6]. The percentage return of forgeable iron from the original charge of ore in BABUNGO was c.22% which compares very favourably with that attained by the Sukur smelters (Sassoon, 1964), using similar furnaces, where 16lbs of forged iron was got from 200lbs of ore giving a percentage return of only 8%. However, see Pole (1983) for a discussion of the variability of output recorded from Sukur foundries. Using similar high quality ores but a very different tall cylindrical furnace technology the smelters of Bassari appear to have achieved a 23% return of unshingled bloom from the charge of ore and a very high 73% return of forgeable iron from the unshingled bloom (von Luschan, 1909).

[7]. This figure may seem high but ought to be set in the context of other sub-Saharan smelting practices. For instance, in their reconstruction of smelting amongst (continued...)

This clearly indicates the marked variation in relative labour productivity of these three precolonial iron industries. In these terms the BABUNGO industry was clearly superior and highly efficient relative to the other two industries. It was over twice as efficient as the open bowl furnace technology used in OKU, and more than eight times more efficient than the technology used in WEH. Accordingly, in relation to WEH, at least, we may view the technology and organisation of work of the BABUNGO industry as representing a more highly developed industrial model, that brought in significant *economies of scale* over those technologies, using simple cylindrical furnaces, that existed elsewhere in the region.

However, neither economies of scale nor superior labour productivity explain the very high levels of production that are evidenced by the huge quantities of smelting debris to be seen in the chiefdom of BABUNGO. Nor do these factors explain how such high levels of production were achieved since, while the BABUNGO industry may have been relatively efficient in comparison to other industries in the region, it still required enormous inputs of labour that had to marshalled, organised and rewarded.

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[7] (...continued)
groups in Malawi, van der Merwe and Avery (1987) determined the cost of a single hoe at contemporary labour rates as c.$250 (U.S.). Paying $1.50 for a smelter and 70 cents per day for a helper gives a labour cost of between 167 and 357 man labour days to produce a single hoe. If we take a figure in the middle of this range we arrive at a cost of c.250 man labour days or five times the cost of the WEH operation and nearly forty times that of the developed BABUNGO clump furnace.

Labour, Equipment and Capitalisation

The comparative advantage of the technology employed in BABUNGO over the smaller scale and less developed technology in use at WEH is very clear. However, the advantage it may have enjoyed over OKU producers is considerably less and of such a low order of magnitude that it might well have been lost altogether in the inherent variability of the productive outcome. In this context the highly specialised nature of the role definitions allocated in BABUNGO to those involved in production and also the mode of recruitment of labour and the modes of access to the capital equipment of the industry seem particularly relevant to understanding its success.

In BABUNGO the very narrow encapsulation of skills and knowledge represented by WOENFIIBUU's exclusive celibacy and specialist skills and the TUNAA's knowledge of the medicines necessary for the successful operation of the foundry have already been noted. This high level of expertise was made readily available to the non-specialist in return for relatively small payments of bloom or cowries. In OKU the situation was similar but involved a much less clear separation of smithing from the smelting arm of production. The open bowl furnace in the OKU workshop was not an item of apparently immense labour cost as was the clump furnace in the BABUNGO foundry and the process of iron production generally had none of the ritual prohibitions associated with smelting in BABUNGO. Whereas, in BABUNGO the smiths constituted a separate and exclusive occupational group, in OKU the specialist smith, the WUULEHTUYIN, operated in the workshop alongside those workers doing the smelting.

The enormous initial inputs of labour and materials required for the construction of a BABUNGO foundry and furnace have been highlighted. In contrast to most other sub-Saharan iron smelting industries the BABUNGO one was highly capitalised. The furnace was a massive and permanent structure and the enormous[8] foundry had storage facilities and a complex arrangement of stone anvils and paved stone flooring. This degree of capitalisation appears to be unique and is clearly linked to the extraordinary levels of output in the last century. The enormous labour inputs entailed in this work were significant not simply for the material outcome but very importantly for the nature of the social relations engendered in the provision of labour to the TUNAA by kin, neighbours and others in return for access to foundry and furnace, smelting skills and medicines.

It has been noted how technical elements[9] including the use of high grade ores, in combination with a large furnace capacity, and a concomitantly large charge of fuel and ores, enabled the production of high volumes of bloom. This was achieved with the return of a higher percentage of unshingled bloom than was the case elsewhere in Grassfield iron industries. A prerequisite of all this was the ability of the system in BABUNGO to provide for the recruitment of intensive labour at the point of foundry construction and continuously through its working life in the preparation of material inputs for the actual smelting process. A major element in this was the facility of access to skills and equipment afforded to those who were not TUNAA, nor linked to a TUNAA by kin and lineage ties, in return for labour and materials. This arose directly from the very high degree of capitalisation of the BABUNGO foundry whereby the enormous input of labour from kin and

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[8]. Bertho (1946) reports a similarly large structure for the Dédougou smithy some 11m by 8ms in plan and 2.75ms in height.

[9]. In addition to these features Sassoon (1963) has noted that "The most ingenious (furnace) type has the air-pipe passing from the top down through the centre, the bellows being behind and above the top of the furnace. This design supplies pre-heated air, a refinement which was introduced a little over a century ago into the iron-smelting industry in England."

non kin alike served to bind up a whole series of patron/client relations that promised to keep the foundry in operation over extended periods of time and result in large material benefits, in bloom, charcoal and other gifts, to the TUNAA that were quite separate from any profits that accrued from his own use of the foundry. This was probably the most crucial feature in promoting such high levels of production. The binding up of social relations between foundry owner and foundry user through the contribution of the latter of labour and materials in furnace and foundry construction represented a huge investment in future demand for ironware and provided both initial impetus and momentum that vouchsafed the continuity of production.

The limiting factor was the finite nature of the labour supply. It is tempting to use the facile explanation of rich soils and high population density on the plain versus poor soils and low population density on the uplands to explain the inability of the latter centres to increase capacity in order to compete with less capital intensive open bowl recycling industries. Certainly, early colonial demographic data indicates that the populations of BABUNGO and BAMESSING were many times greater than those associated with individual centres of production recorded by Jeffreys in NSO, OKU, KOM and other areas.

Of direct relevance to the gross available labour was the cooperative nature of mutual labour assistance that existed between those who did not have their own foundry and enabled them to meet the high labour and material costs incurred in gathering the necessary material inputs for individual smelts. In the minds of informants this was based on the traditional model of the rotating savings association, the "SHWAA", and clearly served to amass labour for production in the same way as the savings association capitalised currency for trade ventures and bridewealth.

The situation in OKU was similar albeit on a smaller scale, with lower material and labour inputs required both for workshop construction and the smelting operation. In both chiefdoms informants stressed the availability of access to the equipment of iron production to non kin. However, in OKU a large portion of non-kin labour was contributed with the single goal of acquiring ironware not normally obtainable through market exchange. In BABUNGO all items forged in the smithy, apart from those reserved by sumptuary laws, were sold in the market. The organization of production was such that no one contributed labour in order to acquire an item of finished ironware. The exclusive specialization of BABUNGO smiths precluded the participation of non smiths in the process of production.

In both chiefdoms the contribution of non kin labour to the TUNAA of the BABUNGO foundry and the BAKOELAM of the OKU foundry/smithy was reciprocated by granting access to the equipment and specialist skills of WOENFIIBUU and WUULEHTUYIN. In OKU this permitted non kin to gather the necessary material inputs, work alongside the BAKOELAM in the process of smelting and then receive the finished products of WUULEHTUYIN, less his payment in kind. In BABUNGO this allowed access to the foundry for the production of bloom which was then sold for cowries which, in turn, might be exchanged in the market for ironware or some other trade commodity. In both chiefdoms the smith is a specialist who does no other work, and non specialist labour is only contributed in the smelting process. In OKU the relationship between the specialist smith, WUULEHTUYIN, and the labour of non specialists is reciprocal. In BABUNGO this is a formal economic relationship mediated through the market place by the use of the cowry currency as a medium of exchange.

Modes of Specialization

Objectively, the process of transforming ore into a finished item of ironware may be divided up into any number of stages allocated to any number of different sets of personnel. At least three general models of specialization in iron production were current in the Grassfields in the immediate precolonial period. One involved smithing and smelting by one set of personnel in the same workshop, using an open bowl furnace to recycle slag, as in OKU, KOM, BAMESSING and elsewhere. A second is exemplified by the BABUNGO industry, where smith and smelter were separate occupational categories with distinct personnel and workshops. This was similarly the case in WEH, ESU, and also in BAMESSING prior to the adoption of an open bowl furnace technology. A third model of specialization occurred where one chiefdom smelted blooms of iron which were then sold to the smiths of another chiefdom for forging. This relationship existed between the smelters of MBEBJE and the smiths of KWAJA, GOM, and LUS[10], and also between BAFANJI and BAMENYAM[11]. In many more areas Jeffreys recorded traditions that indicated that separate smithing and smelting within a chiefdom had once been practised. These industries were said to have been abandoned in favour of the more lucrative opportunities afforded by trade, especially in the chiefdoms in the north of the region, such as BUM, NYOS, KUK, and MME[12].

The use of open bowl furnaces has to postdate an earlier industry, and probably clump furnace technology, since it was feeding off the debris produced in such

[10]. Jeffreys, 1942.

[11]. Warnier and Fowler, 1979.

[12]. This latter chiefdom, according to Moseley, commanded a limited area of palm oil production.

furnaces[13]. It is as though the highly labour intensive smelting side of the earlier systems collapsed or condensed leaving only smithing as the organising principle behind production. The organisation of the OKU recycling industry supports this notion. It lacks the sexual proscriptions and beliefs associated with smelting elsewhere and the specialist smith retains exclusively the skills of forging and most often became master of the forge/foundry in his turn.

BAFANJI informants[14] distinguished two distinct modes of allocating the task of shingling bloom linked to two furnace types in use concurrently in that chiefdom in the 19th century. In the first, associated with the traditional BAFANJI furnace, the task of shingling bloom was performed in the foundry by smelters who sold the iron cleaned of slag to the smiths. In the second, associated with the developed BABUNGO furnace type, of which two were built in BAFANJI, blooms were sold whole, or in lumps, to the smiths for shingling in the smithy. There is evidence to suggest that what was concurrent in BAFANJI occurred consecutively in BABUNGO. The change over in furnace type usage being linked to a reallocation of the task of shingling bloom. The evidence from the BAKWANG foundry, where every single stone of the flooring was pitted with depressions, suggests strongly that the smelters themselves reduced the bloom to crystals of iron and slag powder to be discarded. In contrast, smelters using a developed BABUNGO

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13. Many sub-Saharan smelters used old slag as a so-called "flux" along with true ore. Bellamy (1904) describes Yoruba smelting practice where 15lbs of selected slag was smelted along with 50lbs of iron ore. The smelters of the "Glazed Sherds" industry also added slag to the charge (Warnier and Rowlands, 1988). No slag was added in the clump furnace smelting process but there was a gray area between true bloom and heavy lumps of slag with bloom inclusions which would facilitate movement towards shingling/resmelting slag in the hearth of the smithy.

14. Warnier, unpublished fieldnotes.

furnace sold the blooms more or less intact to smiths to do their own shingling.

Two vestiges of the earlier situation appear to persist. Firstly, youths continued to mechanically extract iron crystals from the slag on the stones in the foundry. Secondly, when the main blooms had been extracted from the cake of slag at the end of a smelt in the developed BABUNGO clump furnace they were taken and placed on a stone anvil and a short word of thanks said with reverence to the spirit of the foundry. This stone anvil was precisely the one which in an older BAKWANG type foundry would have been used to separate the iron from the slag included in the bloom. It is as though this action represents a acknowledgement to an earlier system of work in which the bloom had been mechanically treated to separate iron and slag within the foundry.

BABUNGO smiths stressed very strongly that the most arduous task in traditional smithing was the process of shingling the bloom into forgeable iron[15]. When European scrap iron became available in sufficient quantities the smiths quickly abandoned the smelters of the chiefdom to their collective fate and turned to smithing scrap iron simply because it was easier to work. If the situation had been reversed and, as may have been the case in BAMESSING, smelting was given up in favour of some more lucrative trade, it would have been only slightly more costly, in terms of labour, for the smiths to continue by using slag rather than ore as a source material[16].

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[15]. This is an important point to take into account when attempting to assess the value of relative labour inputs. It may be overly simplistic to count man labour days without regard to the perceived difficulty and burdensome nature of the tasks concerned.

[16]. Laboratory analysis of old slag from the region (Jeffreys, 1942, and Zacharias, 1979) indicates a relatively uniform and high iron content. Also, the process of resmelting old slag in OKU virtually replicates what had to be done to shingle a bloom in BABUNGO in order to make it into a forgeable mass of iron.

It appears that a package of high labour costs were transferred from smelters to smiths as part of the transformation from "BAKWANG" to developed BABUNGO furnace. This in itself would increase the productivity of smelting, albeit at the expense of the smiths. It is highly unlikely that smiths would accept this unless at the same time they were gaining some advantage from the higher productivity and output of the newer furnace types, presumably in the form of less costly bloom.

While the superior productivity of recent BABUNGO smelting techniques over those in use at WEH and ESU is indisputable, any comparison with earlier clump furnace technologies is on shakier ground. Without the evidence of direct observation or detailed comparative analysis of the inputs and outputs recoverable from furnace and smelting debris it is only possible to speculate. BABUNGO informants stressed the belief that their ancestors had given up the smaller clump furnaces in favour of the developed form which yielded twice as much bloom. It is clear that these traditions conceal great compression of the stages involved in the transformation of furnace structures. However, if it is accepted for the sake of argument that the older smaller clump furnaces produced only half the volume of bloom, perhaps for a smelt of similar duration then a very striking point arises. The labour productivity of the older clump furnaces and the OKU open bowl resmelting industry, based on the exploitation of the debris created by that industry, would have been virtually identical. Given this likely equivalence, together with the high cost of establishing the clump furnace foundry and the availability of large deposits of smelting debris created by the old clump industry it seems as if it would not have taken a very great shove for the latter to collapse and a condensed smithing industry, resmelting old slag, to emerge.

Hence, the characteristic high degree of capitalisation associated with clump furnace technologies set against the low degree of capitalisation required for an open bowl recycling industry together with very close comparative labour productivity suggests an explanation for the demise of the older small clump furnaces that does not depend on hypothetical changes in external demand. It seems plausible to suggest that once the innovation to a slag recycling industry had occurred in one location within the region of clump furnace industries[17] this would have had an immediate, and possibly devastating, effect on the remaining traditional centres. Although roughly equivalent in terms of labour productivity the open bowl industry would have had a significant comparative cost advantage over the larger scale clump furnace users. The latter was highly capitalised and very labour intensive while the former did not require enormous investment of labour in furnace and foundry construction and, by nature of the smaller labour and material inputs associated with this technology, would have been more flexible in its response to market conditions.

It is almost as though the high degree of capitalisation of the old clump furnace industries, the very characteristic that enabled them to attain such high levels of production and supply a very wide area with ironware, actually bore the seeds of their own demise. If

[17]. There are some tantalising hints that this may have occurred in the central northern area of the Grassfields. TANG-MBO informants claim that when they reached their present settlement they found iron working OKU settled nearby and drove them south. Similarly, smelting debris located to the north of the OKU massif at JOTTIN-BU is locally attributed to NTURR elements (Jeffreys, Tribal Notes, n.d.) which by the immediate precolonial period are located to the south of the OKU massif, again in association with smelting debris. Further, the TAAVISA (SA refers to slag in LAMNSO') area was allegedly occupied by VEDO'O clans of MFUMTE (ie. northern) origin when NSO took refuge there (Kaberry, 1963 fieldnotes). This suggests movements of slag seeking groups toward the centre of the region that, in these traditions, are invoiced backwards in time.

labour and capital costs became overbearing in the face of a finite labour supply and so resulted in the collapse of smelting and the emergence of "enhanced smithing" resmelting old slag this would, in turn, have undercut those remaining clump furnace centres save for those that were able to innovate to achieve an increase in capacity so as to gain the advantage of economies of scale[18]. The physical evidence of change in furnace forms and the associated distribution and volumes of debris from BABUNGO may be taken to suggest that the innovation from old, small capacity, BAKWANG furnace to the larger capacity developed clump furnace type did not simply occur as a response to a dramatic increase in global demand for its products. The concentration of old BAKWANG furnace sites linked to a very high percentage of associated smelting debris in a small central area of the chiefdom suggests a preexisting high level of demand. It seems plausible that the BABUNGO innovation may have represented a means of maintaining competitiveness in the wider market for ironware, to which it was so highly committed, against those centres which had abandoned highly capital intensive iron production for more flexible and less costly open bowl resmelting of old slag.

The latter, in their turn, while less constrained by finite labour resources, would necessarily have been checked at some point by the inevitable exhaustion of finite deposits of old slag, or by increasing transportation costs. This was clearly the case for OKU which, having virtually exhausted local sources of slag early in this century, innovated by switching to smelting a

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[18]. There is evidence from BAFANJI (Warnier, fieldnotes) that two large developed BABUNGO type clump furnaces were built, probably in the first half of the nineteenth century. BAFRENG claim to have learnt to build large clump furnaces from BABUNGO (Chilver, 1963 fieldnotes). It does appear that attempts were made to increase furnace capacity so as to gain economies of scale and the larger BAMESSING furnaces probably fall into this category.

fifty-fifty mix of slag and true ore. In both OKU and NSO slag is still, in the present day, recognised as a valuable resource from which iron may be obtained even when the true origin of the material has become obscured. In the uplands between BABUNGO and KOM, OKU and NSO all debris heaps visible from trade paths have been levelled and only those hidden off the beaten track remain untouched. To the west it is claimed that open bowl smelters from KOM trekked up to 45 miles in search of slag found in the vicinity of SANTA[19].

It is conceivably this situation of rising costs that may have prompted greater investment in the kola trade rather than the simplistic notion that opportunities afforded by demand for kola put iron production out of commission[20]. The enormous profitability of the kola trade noted in 1925 by Drummond-Hay[21] is clearly a function of

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19. Jeffreys, correspondence to the Director of the Geological Survey at Kaduna, dated 22.7.1941.

20. Jeffreys, 1961, recorded statements in OKU to the effect that before and during the period of German colonial rule <u>all</u> OKU men were iron workers and that it was only in the British period that people gave it up for trade to IBI and the coast.

21. Ndop Assessment Report, 1925. Para. 254. Each kola tree produces anything from 40,000 to 50,000 nuts per year and at 5/- to 10/- per 1000 this gives an average income of c.£17 for one tree.
Para. 255. In OKU kola forms the chief article of trade. Last year kola was being sold at 5/- per 1000 nuts, this year it is being sold at 10/- per 1000 nuts, and was being retailed to HAUSA traders in the market at 12/- per 1000 nuts. The average OKU trader sells from 1000-2000 nuts in a day, and his profit is therefore 2/- or 4/-. Taking it that there are 45 market days in the year and that he attends each one, and that his average profit is 3/-, the stay at home kola middleman makes an annual income of £6 15s 0d. But many of these kola traders take the kola to TAKUM where this year kola was being sold at £1 per 1000 nuts. To TAKUM from OKU is a six day journey, so that allowing one day for the sale of his kola and one day for the buying of other goods, the profit on 1000 nuts (a one man load) is 10/- in 14 days. Supposing that the trader does 15 journeys in the year his profit from kola alone is

(continued...)

the opportunities opened up by the development of infrastructure and freedom of trade arising from the colonial mandate and can not be used to explain the cessation of iron production in the 19th century in subsequent kola producing areas. In fact, there is not even a conflict between the two activities in so far as the kola "season" falls outside the main period of intensive iron production.

The volume of BABUNGO production in the late 19th century clearly signals enormous external demand for its products. The OKU industry can not have been insulated from this external demand. Its great investment in the kola trade was almost certainly post-colonial. When, early in the dry season of 1889, Zintgraff looked south from DIN for his return route to BALI NYONGA he observed the northern slopes of the OKU massif covered with the smoke palls of the OKU charcoal burners[22]. Accordingly, it may be asked what were the constraints that hindered the OKU iron industry from reaching levels of production similar to BABUNGO?

Firstly, while it is one thing to "devolve" from a clump furnace technology to an open bowl type, it is quite a different matter to go in the opposite direction, and there is no evidence from the multitude of iron working sites in the region or oral traditions that this may have occurred. It does seem reasonable to suggest, however, that the structure of specialization in BABUNGO, whereby smith and smelter were separate economic and productive entities mediated by extraneous currencies and trade goods, may have allowed the penetration of market forces to a far greater extent than would have been the case in OKU where both arms of iron production were subsumed in a single

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[21](...continued)
£7, without taking into account the profit he may make from the sale of goods which he buys in TAKUM."

[22]. Zintgraff, 1895.

in one location, the KOELAM. If this state of affairs were put together with an assumed productive superiority over earlier clump furnace technologies then we may have arrived at some understanding of how the comparative advantage of the BABUNGO iron industry enabled the development of such high levels of production in response to external demand for its products in the latter part of the nineteenth century.

Allocation of Beliefs

The conceptual basis of the separation of smith and smelter is expressed in different mythical origins and distinct mystical associations. The smelting founders of the chiefdom emerge from a cave behind a waterfall which denotes associations with the ancestors who live beneath the earth and who reach there by passing through water. The founders emerge from this enclosure within the earth[23] through the water bearing the medicines which will enable them to extract fecundity from the earth to produce bloom and children, ie. the wealth of the chiefdom. The medicines and sorcery that facilitate this are socially controlled through cooperation, patronage and sharing of the products. In contrast, the ancestor of the smiths falls from the sky, the world of powerful combative mythical beings. In some versions[24] he may descend a spiders web or the iron hammer he bears may be wrapped in such a web. Fragments from the "original" hammer are incorporated into each new one made by smiths and embody continuity with the world of powerful sky spirits that is expressed in the power to issue mortal oaths. This hammer is the "mother" of the world and with it the smith can make and unmake and the smith is associated with powerful medicines that serve as defence against the predations of hostile witches.

The smith and smelter are conceptually conjoined in the figure of the spider whose web appears to float mysteriously down from the sky and yet who lives in a hole in the ground. The spider links the world of the ancestors below with the world above of sky spirits and represents

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[23]. NSO myths include the tale that the NGGOILUM group of iron workers disappeared down into a hole in the ground (Kaberry, fieldnotes).

[24]. In the myth of origin of the PA'TI iron workers they are said to descend from the sky on a spider web (Chilver, BALI fieldnotes).

wisdom incarnate. By association the smith and smelter share these attributes. The smelter transforms the earth into riches, ore into bloom, and represents peace and prosperity. The smith represents power and aggression and will defend the chiefdom against attack both with sorcery and with his physical strength.

There is evidence of former large scale modes of iron working in the form of clump furnace remains, associated debris, and oral traditions for parts of KOM, OKU, NSO, northern BAMUM, the southern Ndop plain and the western Bamenda plateau. This evidence implies a former separation of smithing and smelting since it is not possible to use a clump furnace for forging ironware. In most of these areas, apart from BAGHAM and the western Ndop plain, this form of production ceased in the eighteenth or early nineteenth centuries and these industries devolved or "condensed" into combined open bowl smithing and smelting exploiting slag produced by the earlier clump furnaces. What had once been conceptually distinct mythic and mystical associations were recombined in different ways in different chiefdoms.

In OKU, for instance, these elements appear to have been stripped out and iron working becomes largely demythologised and the FON is closely linked to iron working and is buried with an OKU hoe whereas in BABUNGO the last three FONs were buried with blooms[25]. However, in BAFUT iron smelting becomes somehow inimical to the ritual powers of the elders and a form of symbolic ritual avoidance arises between the FON and iron so that it is forbidden to approach him bearing an object made of iron[26]. In BAMUM, where only smithing persisted at the end of the nineteenth century, NJOYA strongly desired[27] to acquire the

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[25]. This was observed when the skulls of these FONs were moved to the present palace site.

[26]. Rowlands, personal communication.

[27]. Rein-Wuhrmann, 1925.

secrets of iron smelting and having failed to manoeuvre SANGGE into passing them on to him instead had the TIKAR build a furnace in the palace precincts. It is noteworthy that while there are some clear parallels in the processes of emergence of the large polities of BAFUT and BAMUM there is no obvious parallel disassociation of the BAMUM king from objects of iron[28].

The point here is that one can not easily generalise for Grassfields notions of the conceptual framework of iron production on the basis of any single centre where the large scale mode of production has ceased and the nature of associated beliefs has taken its own direction. BABUNGO and BAGHAM appear to be the only centres[29] that retained the large scale mode of production and although the high level of output in the former chiefdom may have tended to banalise some aspects of associated belief it seems plausible to suggest that what remain are more closely representative of beliefs current in the region at an earlier point in time.

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[28]. The BAMUM king is said, for instance, to have been buried with 3 double gongs, 10 spears and 2 swords (Geary, 1979).

[29]. BAMENYAM and BAFANJI each dropped one half of the two elements of large scale modes of production. There is evidence in BAFANJI, at least, in the form of smelting debris that it formerly had performed both smithing and smelting (Warnier, fieldnotes).

TRADE

Introduction

The enormous output of the BABUNGO iron industry was sustained and promoted by the regional system for the distribution of locally produced commodities and exotic trade goods. Regular weekly markets, specialist traders and the use of convertible currencies facilitated the export of ironware in return for a substantial flow of prestige goods and regional specialist products. It will be shown that the heavy transportation costs of exporting BABUNGO products, that would have severely constrained potential output levels, were largely taken over by neighbouring chiefdoms specialising in regional trade. Further, on the basis of this specialised production of a high unit value commodity the specialist trading chiefdoms played a central pivotal role in moving high value goods between the margins of the Calabar, Douala, Benue and Adamawa trading spheres[1]. This enabled high profits to be realised in conveying goods between the "port" markets of BALI NYONGA, BAGHAM, KUMBO and FUMBAN.

At the end of the 19th century no chiefdom in the northern Ndop plain was self-sufficient in the material requisites for social reproduction. Primarily, they lacked palm oil for bridewealth payments, birth celebrations, succession payments, fees for sumptuary rights, and for ritual libations to spirits and ancestors. With the exception of BAMUNKA[2], no chiefdom produced any significant quantity of palm oil. This was obtained through regional trade networks that tied in areas of intensive palm oil production at the extremities of the region.

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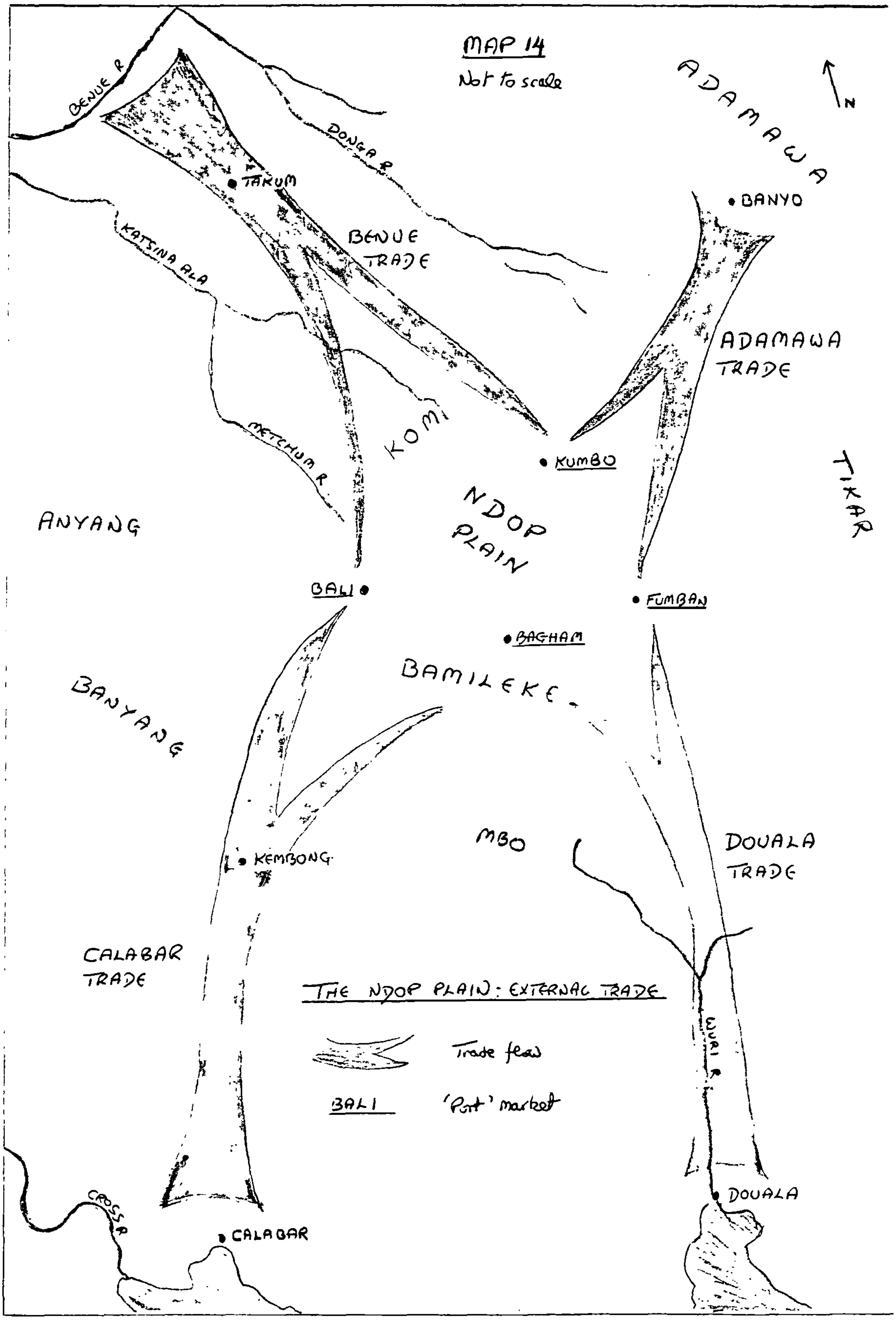
[1]. See map 14.

[2]. This will be examined in more detail below.


MAP 14
Not to scale
N
ADAMAWA
BENUE R
DONGA R
TAKUM
BENUE TRADE
BANYO
KATSINA ALA
ADAMAWA TRADE
KOM
METCHUM R
KUMBO
TIKAR
NDOP PLAIN
ANYANG
BALI
FUMBAN
BAGHAM
BAMILEKE
BANYANG
MBO
DOUALA TRADE
KEMBONG
CALABAR TRADE
THE NDOP PLAIN: EXTERNAL TRADE
Trade flow
BALI
'Port' market
WURI R
DOUALA
CROSS R
CALABAR

Two strategies were adopted to acquire both palm oil and other items of trade not produced locally. Each chiefdom tended to specialise, either in the production of high value, low bulk, craft goods, which allowed them to offset high transportation costs entailed by the location of the Ndop plain relative to palm oil sources, or in a specialist four cornered pattern of trade linking NSO, BAMUM, BALI NYONGA and northern BAMILEKE chiefdoms. BABA, BANGOLAN and BAMBALANG specialised in trade; BABESSI and BAMESSING[3] engaged in trade but also in the production of fine clay pots, pipes and raffia bags; BABUNGO, BAFANJI and BAMENYAM specialised in iron production.

An important theme emerging from accounts of precolonial trade concerns the preoccupation of BABUNGO with production over distribution. It was commonly stressed that they were simply too busy producing the ironware in the first place to have time to go and sell it in other markets. The examination in the previous section of the nature of the different labour inputs and skills associated with smithing and smelting suggested that smiths were less likely to engage in external trade preferring to put hard won skills to more or less continuous use while smelters, engaged in a more laborious but intermittent activity, might more frequently engage in external trade. Smiths tended to stay put and sell directly to traders in the smithy or in a BABUNGO market with little or no loss of production time.

[3]. BAMESSING trade was oriented toward the western Bamenda plateau and palm oil sources on the western margins of the region.

BABUNGO informants confirm that foreign traders coming in were more numerous than local traders carrying goods out. To paraphrase one BABA informant :-

> "BABUNGO just sat and made their knives for BABA people to trade and BABA brought back to BABUNGO oil and cloth and all the things they needed."

BABA shared this intermediary role vis à vis BABUNGO producers of ironware and external sources of regional trade goods with BANGOLAN, BAMBALANG, BAMUNKA, BABESSI and BAMESSING.

Outlets

Markets

Schmidt noted that even the heavy patronage[4] of markets such as BAMESSING did not necessarily indicate that a large volume of trade was being transacted in the market place. The market was more significant as a social arena[5] with a major function being the provision of a venue for establishing preliminary contacts with a trading partner prior to initiating an exchange of trade goods, an event which most commonly took place privately in the compound. Hence, the largest markets are found on the periphery of zones of specialised production of an important regional commodity, such as palm oil or ironware, and are a function of the need for intensive contacts between middlemen and primary producers[6].

The functions of the market were also closely linked to the SHWAA savings clubs that in BABUNGO were held the day following the main market. While transactions involving trade in bulk tended to take place outside the

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[4]. A. Schmidt, 1940 and 1955. In the course of her stay in BAMESSING in 1938/39 she made one detailed market census and noted that almost 4000 people entered the marketplace. It is interesting to compare this with Hirtler's estimate of some 4000 people in attendance at the market in FUMBAN when he reached there on the 13.4.1903 (D. Kbl. Vol. 14 1902-3).

[5]. The predominance of "social" items in markets, such as kola, tobacco and raffia wine supports this notion.

[6] Hence the feebleness of the central Bamenda plateau markets, noted by Warnier (1983), may simply be a function of their location vis à vis the major sources of items of regional trade, such as palm oil and craft products. Their resource is their central position, with its entrepreneurial potential, not the cereals or whatever they use to gain entry to the system of exchanges. The entrepreneurial role played by the large MANKON trading households did not require large and busy markets on the central plateau, only on the periphery where it is necessary to meet and make contacts in order to acquire bulked up regional trade goods.

market there were highly profitable retail sales and also important sales of "social" goods such as raffia wine, corn beer, prepared foodstuffs, tobacco and kola that generated a substantial flow of currencies within the market place. The partial liquefaction of capital represented by retail sales and the seepage of wealth from the subsistence base represented by the sale of foodstuffs and beer prepared by women did not create any continuous flow of currency within the chiefdom. The day following the market this wealth was quickly recapitalised in the form of subscriptions to savings clubs given to each member in turn and used for trading expeditions, marriage or birth payments. There were very strong moral commitments not to default on these subscriptions so that these dues overrode other social obligations that would otherwise have rapidly dissipated any money got from the market place.

At the turn of the century there were three weekly[7] markets in BABUNGO, each named after the day of the week on which it was held[8]. Only two were significant with regard to the sale of ironware and external trade goods. The first, EWINGFOEWING, remains the major market of the present day in its original location at the centre of the chiefdom a short distance from the palace. The second, EWINGNGAI, no longer exists[9] although it is possible to see physical evidence (sherds, market stones, etc.) of its site

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[7]. There were also a number of small daily raffia wine markets, termed EWINGMULUU, where the specialist tappers of BABUNGO sold wine. Schmidt, 1940, also records that in the 19th century more than one market was operating in BAMESSING.

[8]. Conceivably the reverse was the case, ie. the weekday named after the market. It was claimed by some informants that market days were fixed on the basis of the death of the last, or last but one FON. In practice, however, what occurred was that the death of a FON was only ever announced on a market day.

[9]. The day on which this market was held is now the market day for Ndop, the administrative centre of the plain.

on the eastern edge of the chiefdom on the original trade path to NSO. The third, "EWINGMBING", still exists and is held midway through the week between the market days of the other two, it was a minor market not visited by foreign traders[10].

The two major BABUNGO markets, together with a third "border" market, called EWINGNGHO, located immediately to the south of the chiefdom, constituted the three main public arenas for commercial contacts for the distribution of BABUNGO ironware. While traders from any area were free to attend each of these markets, there was some emphasis determined by the location and periodisation of the markets. For instance, traders from BAMESSING and the western Bamenda plateau mostly attended EWINGFOEWING and rarely visited EWINGNGAI, which was orientated towards the east and north. They were not physically excluded from EWINGNGAI but, since this latter market was held on the same day as the large markets of BAMBUI, BAMBILI and BABANKI TUNGO, they were unlikely to attend. These three latter markets together with BAMESSING, held one day following, constituted, along with the BABUNGO market of EWINGFOEWING, held one day after BAMESSING (see table of periodisation of Ndop plain and surrounding markets), the outlets for the distribution of BABUNGO ironware to the west.

Traders from all directions attended the important "border" market of EWINGNGHO but it was primarily a centre for traders from BAMUNKA and BABA, and the two refugee chiefdoms of BANGOLAN and BAMBALANG. It lay in neutral territory and was a significant commercial centre both for the bulking up for regional trade of items of localised

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[10]. Interestingly, it is the only one marked on Moisel's 1911 map. The "EWINGNGAI" market may have been deliberately concealed from the Germans as it was an open slave market. It certainly folded very early on in the first years following the establishment of the station at Bamenda when slave trading took on a more clandestine character.

specialised production and also for enabling contacts to be made between traders from these chiefdoms dealing in prestige goods form NSO, BAMUM and northern BAMILEKE sources.

Table 10

Periodisation of Ndop Plain and surrounding Markets

(BABUNGO weekdays)

NGAI	FOEKEH	FOEWING	FOEJING
BAMBUI BAMBILI BABANKI TUNGO EWINGNGAI	BAMESSING	EWINGFOEWING BAFUT	BAMALI
MBA	**MBING**	**NKUUSOE**	**MBWANOE**
EWINGNGHO BAMBALANG[11]	BABESSI	No market	K U M B O

[11]. This was the market day for BAMBALANG in its original site. Informants stated it had no market while in refuge near EWINGNGHO.

EWINGFOEWING was described in the 1920s[12] as one of the largest markets in the region with only BALI NYONGA, KUMBO, and BAMESSING being larger. It was the major outlet for the sale of ironware to traders from all the surrounding chiefdoms with most frequent visitors coming from BAMESSING, BAMUNKA, BABA, BANGOLAN, BAMBALANG, and BABESSI all located at no great distance from BABUNGO. Traders from NSO, OKU, KOM and BIG BABANKI were also noted visitors. Much less common were those from BAMUM, BALI NYONGA and WUM. It seems that, with the exception of BALI NYONGA, traders from the western Bamenda plateau rarely penetrated much beyond BAMESSING. BALI KUMBAT appears to have played only a minor role in trade in the northern Ndop plain.

BAMESSING traders formed an important link between BABUNGO and western sources of palm oil which they carried to sell in EWINGFOEWING. They bought hoes (SOVOEKA) to sell to traders from the western Bamenda plateau. Demand for this type of hoe was very strong at the start of the rainy season and BAMESSING traders went from smithy to smithy to buy them with cowries or brass rings. BABUNGO smiths at this time generally stopped making other items of ironware to concentrate solely on the production of SOVOEKA to meet this demand.

BABANKI TUNGO traders played a similar role. They came to buy hoes to take and sell in BAMBILI, BAMBUI and BAFRENG markets. They also traded in EWINGFOEWING and with smiths directly in their compounds and, like BAMESSING traders, did not enter EWINGNGAI. These traders brought palm oil and brass rings to exchange for ironware. It is interesting that BABUNGO smiths and traders accepted brass rings since these were not otherwise used for trade within the chiefdom. Informants explained that these brass rings would be stored in the "ISHIA", or treasure houses, of compound heads until they were needed. On the occasion of

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[12]. Trade Report, 1922

a birth, or marriage celebration the need for large quantities of palm oil arose and brass rings would be carried to BALI NYONGA, BABANKI TUNGO or BAMESSING and exchanged for this commodity.

Of those chiefdoms immediately to the north of BABUNGO, KOM traders were the most frequent visitors to EWINGFOEWING[13]. They came to buy ironware and also foodstuffs such as guinea corn and maize. In exchange they brought palm oil from WUM, salt, goats, cloth, and slaves. OKU does not seem to have been very active in trade southward apart from supplying honey in exchange for cowries or ironware. While NSO traded in both major BABUNGO markets it is mostly mentioned by informants in connection with EWINGNGAI.

EWINGNGAI was an important market for trade in ironware, slaves, goats and foodstuffs, and also other regional trade goods brought in by BANGOLAN and BABA traders. This is the only BABUNGO market that had a "slave line", an area set aside for the sale of slaves. These slaves were mostly traded out of BAMUM by traders from BANGOLAN and BABESSI. The latter had its own market, where slaves were also sold openly, and seems to have played an important economic intermediary role between NSO, BAMUM and the chiefdoms of the Ndop plain. BANGOLAN dealt heavily in slaves from FUMBAN along with palm oil and prestige goods. The BANGOLAN FON even had a masked representative who would approach traders passing with slaves to BABUNGO markets and offer to buy them on his behalf. Many of these slaves ended up in EWINGNGAI. NSO traders carried cloth, salt, goats, tobacco and kola to sell and purchased ironware to take in return. EWINGNGAI appears to have been an important centre for the

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13. This remains true in the present day so much so that when, in the early afternoon, KOM traders gather with their loads prior to departure there is a noticeable slackening off in the hustle and bustle of the market place.

redistribution of goats from NSO, and possibly also KOM, with a permanent area set aside for them.

While the BABUNGO regulatory association exercised some control over the organization of these markets, in terms of issuing commands as to what and how things might be sold or not sold, it did not directly police them. Senior elders might use their personal authority to chastise miscreants in the market place but any dispute involving a foreign trader had to be taken immediately before the FON. Informants stressed that, no matter the merits of the case, the FON would almost invariably find in favour of the foreign trader. The far flung reputation of BABUNGO, noted by Zintgraff in 1889, for peaceable dealings with strangers was something that had been positively fostered by FON SANGGE.

BABA, BANGOLAN, BAMUNKA and BAMBALANG played important roles in carrying BABUNGO ironware to markets to the east and south. However, none[14] had a major independent market[15] of its own, and each shared the important "border" market of EWINGNGHO. Nonetheless, within each of these chiefdoms a wide range of goods were available in private trade. In addition to goods from BAMUM such as palm oil, slaves and cloth, a range of local products including dried mudfish, ironware, groundnuts and maize, and woven caps were sold.

<u>EWINGNGHO</u>, called VIINGHO by BAMUNKA and TEHNGHO by BABA, was situated at the point where the three chiefdoms of BABUNGO, BABA and BAMUNKA are contiguous and not far from the BANGOLAN and BAMBALANG refuge sites. It was a

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[14]. BANGOLAN and BAMBALANG did have major markets of their own in their original settlement sites. When these two chiefdoms returned and resettled these sites around the turn of the century it is likely that the market of EWINGNGHO began to diminish in importance.

[15]. This indicates that the presence or absence of large regional markets has little to do with "power" as such but rather more to do with the economic functions performed by these markets.

border market located in neutral territory which allowed trade to be carried on with no interference from the regulatory association of BABUNGO. It was a large market claimed by BABA and BAMUNKA informants to have been equal in size to EWINGFOEWING. Traders from BAMESSING, BAMBALANG, MBELEKWANSO, NSO, BABESSI, BABANKI TUNGO, BANGOLAN, BALI KUMBAT, BAMALI, BAMUM and northern BAMILEKE chiefdoms are said to have frequented this market. BABA traders brought palm oil, salt and camwood to sell. BAMBALANG brought palm oil and camwood from FUMBAN and also sold dried mudfish and game. BABUNGO sold ironware and bought palm oil originating from BAMUM and locally produced dried mudfish here.

The location of the three chiefdoms immediately to the south of BABUNGO has been rightly attributed[16] to insecurity arising from pressure from BALI KUMBAT and BAMUM. However, their motives for choosing a refuge site precisely adjacent to BABUNGO may well have been determined by a pre-existing entrepreneurial role they played between BABUNGO iron producers and sources of external trade goods, especially palm oil from BAMUM.

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[16]. See Chilver and Kaberry, 1968, also the Ndop Plain Assessment Report, 1925, and Imperial Military Station Reports, Ref. G.B. II.167 of 19.1.1911.

Credit and Commissions

It was common practice for foreign traders to place orders with BABUNGO smiths for a specified number of particular items of ironware to be made, collected and paid for a short while later. No advance payment was made. These commissions were stressed by BABUNGO smiths as the major outlet for their products. Such arrangements were common with BABANKI and BAMESSING traders who purchased the SOVOEKA hoe type in this way. They continue to be very important up to the present day. It was observed that less than one third of contemporary ironware produced by BABUNGO smiths from European scrap iron in any one week actually appeared for sale in the local market place. The bulk of the ironware was either carried out by specialist BABUNGO traders or collected directly from the smithy by foreign traders who had earlier placed orders. In the precolonial period not all commissions took place irregularly between different smiths and traders. Where a regular relationship developed we enter into the realm of "trade friendships" described below. Private agreements for delayed payments between BABUNGO traders operating in external markets and local smiths were less common reflecting the low level of engagement in external trade.

Rotating Credit Associations

"SHWAA" associations were primarily savings and loan[17] clubs for males. Memberships included individuals of all ranks so that one group might comprise senior titled compound-heads, ordinary untitled individuals and even slaves. All BABUNGO "SHWAA" met on the day, FOEJING[18], that followed the main market day, in the compound of their "TUSHWAA", the "father of the SHWAA". Each member contributed a set sum in cowries, usually between 100 and 500 cowries, and each week one member received the total contribution. This was termed "NAA-SHWAA", or "cooking the SHWAA", and the recipient would provide raffia wine for the entire company. Normally the "NAASHWAA" simply went from member to member but if an individual came along out of turn and presented a particular problem, for instance, a pregnant wife about to give birth[19] and hence a pressing need to buy palm oil, mudfish, raffia wine and camwood for the birth celebration, he would be given the "NAASHWAA".

Records were kept by means of segments of bamboo pith threaded on to a string to indicate the number of members. These were counted off as each member made his payment and the number of those defaulting on payment was shown by inserting a small stick on to the string. Small fines and

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17. "Loans" were made in so far as one individual might take the pool of contributions out of turn should an unforeseen need arise but no interest was levied. Loans with interest are a feature of contemporary credit associations.

18. The day set aside for SHWAA meetings was the same as in BAMESSING, (Schmidt, 1955), it enabled individuals to accumulate their subscriptions through retail market sales on the previous day. The sequence of main market day followed the next day by SHWAA meetings meant that what little currency actually came into circulation in the marketplace was rapidly recapitalised in the form of subscription pools taken and used for trade or bridewealth.

19. Informants stated that a request to do with birth could not customarily be denied.

penalties might be levied on anyone failing to make a weekly contribution or for flouting a rule such as that against drinking raffia wine before making a contribution. These were kept till the final meeting when the sum collected was used to buy extra wine or kola for all the members.

A typical "SHWAA" might have 20[20] or more members and last about half a year. If the "TUSHWAA" had kept firm control and there had been no serious disputes the "SHWAA" might continue in the same compound for several rounds. Otherwise, as a "SHWAA" approached its end individual members would begin to campaign to recruit members to a "SHWAA" in their compound. There was a certain degree of social prestige attached to having a weekly "SHWÁA" in the compound but more importantly it was the rule that the "TUSHWAA" was always the first to take the "NAASHWAA" and, hence, receive the maximum interest free credit from the system.

While it was not necessary to obtain permission from any authority, such as TIFWAN the regulatory association, before setting up a SHWAA, there was a strict limit imposed by TIFWAN so that there could only be a maximum of two "SHWAA" in any sub-ward[21]. This limitation was intended to prevent problems arising from too few cowries chasing

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[20]. It is interesting to compare this figure with those recorded for MANKON by Warnier (1983). He states that these associations consisted of rarely more than 5-10 members. He also notes that high value prestige trade goods might be paid in place of brass rings and that membership was not derived from residence but friendship. This suggests narrow based associations of wealthy individuals in contrast to those of the Ndop plain where a male slave might contribute at the same meeting with a wealthy compound head albeit at different rates.

[21]. Within each ward of the chiefdom there were up to three NJONG, or sub-wards. The "NGGINJONG", or house of "NJONG", was a meeting place where the affairs of the local residential sub-unit of the ward were discussed under the auspices of the "TUNGGINJONG", or father of the house of "NJONG".

too many "SHWAA" contributions[22]. It may also have tended to stimulate the circulation of these associations within a residential sub-unit.

The use that the "NAASHWAA" was put to depended on the needs and status of the recipient. A slave or son, still resident in the compound, was expected to pass on his cowries to his compound head. In the past slaves are said to have been considerably more dutiful in this respect than true born sons. Whatever the case, the rationale behind this was that the compound head was expected to provide the bridewealth for the first wife for either son or slave. A compound head, himself, might use his "NAASHWAA" for bridewealth, or the purchase of a slave, or for the purchase of items such as palm oil or camwood required for the celebration of a birth[23] or for mortuary rites. Traders participated in "SHWAA" associations in order to raise capital to purchase bulked up goods for major trade journeys.

Weekly contributions of cowries were also a common feature of other associations whose main function might be political, ritual or recreational. If this were a recreational dance group it would meet weekly in a special house, where non-members were prohibited from entry, in the compound of the head of the group to drink and talk. One member would be put in charge of collecting the "WEHMBWAA-SHWAA", or baby "SHWAA", and keeping note of what was paid. This sum of cowries was then "sent" to a "SHWAA" proper where it was contributed in the normal way save that it was said to come from a "WUUGAI", or secret person. When the

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[22]. This restriction would also have had the effect of increasing the potential for capitalisation inherent in these credit association. By contrast, Schmidt (1951) records 8 "TSYA" in one BAMESSING "sub-ward" of 74 compounds.

[23]. For example, one informant received 10,000 cowries which he used to celebrate the birth of a son shortly after the imposition of British colonial administration.

time came for the "WUUGAI" to take the joint fund it was very often used on the collective behalf of the dance group for commercial purposes. The profits were then shared either equally to the membership or according to the amount of individual contributions.

The principal commercial function of the "SHWAA" was to allow capital to be amassed either for major trade journeys or to acquire a wife or highly priced prestige goods. The membership was categorically not constituted on the basis of kin or descent ties but by residence and personal affinities. The "SHWAA" was set aside from the family and one major function was to enable capital to be accumulated outside of the context of familial obligations which would normally vitiate against an individual amassing a large sum of cowries. A further and very significant aspect of the "SHWAA" in a situation of only limited participation in external trade was that it provided a model for the cooperative marshalling of labour by young males for the task of smelting iron ores in the foundries of their seniors.

Trade Journeys

While, the bulk of BABUNGO ironware was traded out by specialist traders from neighbouring chiefdoms accounts of journeys by BABUNGO traders around the turn of the century throw some light on the organisation of trade.

There is a paradox in the great stress placed by informants on the insecurity and fear associated with trade journeys[24]. The same informants are able to give detailed accounts of trade journeys as far afield as WUM, NSO, FUMBAN and BALI NYONGA. Trade links indicated by oral accounts are confirmed by genealogical evidence of the origins of assimilated slaves. In the case of BALI NYONGA trade and diplomatic relations are confirmed by Zintgraff[25]. It appears the greater the potential profitability of trade to a market the more likely it was to be characterised in terms of fear with traders having to pass secretly in the night through the bush in great danger. Those, however, most heavily engaged in external trade did not share these fears although they may well have encouraged them in others both to glorify their own exploits and to mystify their sources of wealth[26]. These traders did, nonetheless, take reasonable precautions by travelling in armed groups of up to ten or more and the markets of smaller chiefdoms where conditions were least secure tended to be avoided.

Each trade party left BABUNGO under the leadership of a TIJUH, or "founder of the road". Similarly a group

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[24]. There are close parallels with tales of the dangers of magical journeys to obtain witch wealth.

[25]. Zintgraff, 1895.

[26]. There is a clear tie up between this association of external trade and danger, and the link in the oral traditions of the area between settlement compaction and perceived external threat. The latter centred on the risk of capture and sale into slavery by opportunistic brigands who, in another guise, are the very traders making large profits from this external trade, which they, in turn, have enshrouded in a cloak of fear and danger.

travelling on behalf of the FON in the context of "royal" gift exchanges and diplomatic missions would be led by a "TIJUH"[27], who, in turn, provided accommodation to representatives of other FONS visiting BABUNGO, with the aid of food, wine and gifts sent from the palace. The conflation of trade and diplomatic roles in the term "TIJUH" parallels the very close links between trade, diplomacy and gift exchanges between FONS[28]. As leader of a trading party a "TIJUH" would be the one who had first made the journey to their intended market and was expected to know the route and have some knowledge of market conditions. He received a small payment of cowries before departure and then upon return he was rewarded with gifts of kola, tobacco, wine and cowries from the profits made in trade.

The trade leader would have his own "TUFUWOE", or compound hosts, to provide food and sleeping space at stop over points on the journey. A large party of traders would be parcelled out amongst different compounds and each trader would endeavour to buy a little palm oil, or other item of trade, to give to the wife of the man in whose compound they had slept on the journey out.

At the destination market it would be the "TUIYINGWOE", or "trade partner" of the trade party leader who might buy all or part of their trade goods or provide introductions to other interested parties. If, after some time, some goods were left unsold it was usual for the BABUNGO trader to deposit the items with the trade partner to sell on his behalf in his absence. The BABUNGO trader would return home and only later go back to collect his

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[27]. This role is similar to that played by the "ANGGAKIBEIY" of NSO, P.M. Kaberry, NSO fieldnotes.

[28]. While at the end of the nineteenth century there appears to have been a clearer separation between trade undertaken by seniors and diplomatic gift exchanges undertaken on behalf of the FON it may be that at an earlier juncture the two were not as distinct.

payment. In the first instance this trade relationship would be established simply by meeting and joking together in the market place and later cemented by exchanging gifts of kola nuts and tobacco and sharing raffia wine and food. BABUNGO Informants were emphatic that these relationships did not involve swearing oaths or ties of blood-brotherhood such as have been reported for the western Bamenda plateau[29].

Once a BABUNGO trader had found a trade partner in an external market he might well, as trade leader on subsequent journeys, bring along other BABUNGO traders to this trade contact. Where markets lay at the extreme limits of BABUNGO trading activity, eg. FUMBAN and BALI NYONGA, it seems common for one high ranking local individual to be trade partner for all BABUNGO traders reaching that market[30]. For instance, around the turn of the century, one BALI NYONGA prince, called MUWA[31] by BABUNGO informants, played this role.

A trade journey made before 1902 by one informant, a smith, illustrates some of the conditions of trade. As a

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[29]. Warnier, 1975. In BABUNGO blood brotherhood ties, termed "MOEKEH'", were only established between age-mates within the chiefdom and not with strangers. It may be a precondition of the economic relations betwen BABUNGO as primary producers and, say, BANGOLAN as specialist traders that such ties should not arise. Blood pacts between MANKON traders represent the assimilation of commercial relations to the obligations of affinity and kinship and allow for the regulation and control of competition between them. The relationship between producer and trader is precisely the opposite and the latter must avoid becoming enmeshed in prestatory and other social obligations in order to perform effectively as entrepreneur.

[30]. Presumably in a chiefdom such as NSO this would be a "ANGGAKIBEIY" appointed by the FON to deal with traders or visitors from another chiefdom. Once again it is difficult to see any clear separation between diplomatic and commercial roles.

[31]. This may have been M'BO, or another son of GALEGA.

youth he accompanied his father and elder brothers on a series of trade journeys to WUM carrying double gongs to exchange for cowries and palm oil. The WUM trader first came to BABUNGO in a group with five others and brought gifts of kola nuts to his father as they had an established trade partner relationship. He stayed in the compound and commissioned his father to make a number of double gongs. These were carried over a series of three journeys spaced out over one and a half years. On one occasion the four elder brothers carried eight double gongs and also six spears as a gift to the WUM trader. En route to WUM they passed through NJINIKOM and slept in the compounds of their "TUFUWOE" in FUNDONG, MME and KUK before finally reaching WUM where they might stay up to four days before everything had been sold. Their trade partner did not buy all the double gongs himself but invited others to come to his compound and haggle, in cowries, over the price of those remaining. The eight double gongs were exchanged for a total of 6000 cowries and approximately 120 litres of palm oil contained in 4 "MUNKO", special containers used in that area for palm oil. They also carried some fowls back to BABUNGO as a gift from the WUM trader to their father. On the return journey they were accompanied by some WUM traders who helped to carry the palm oil in exchange for being shown the path and who were interested in buying ironware in BABUNGO. Also on their return they gave some small sums of cowries to their "TUFUWOE" as a recompense for the hospitality they had received on the outward journey. There was "war" between BABUNGO and KOM at this time but the people of KOM gave them no trouble and they passed unmolested. After these three journeys the WUM trader returned to BABUNGO to ask their father to make more double gongs.

A second trade journey was undertaken by a smelter carrying hoes in the dry season to FUMBAN around the turn of the century. He went with four other adults and two young recruits undergoing training in the regulatory association compound which he had "borrowed" from the officeholder in charge of them who received a gift of palm oil for this favour. The six in the party carried up to 80 hoes, 10 or 20 cutlasses and 10 spears. Each hoe was bought from a BABUNGO smith for c.500 cowries and sold in FUMBAN for between 700 and 900 cowries. They departed the day following the main market and slept the first night with their "TUFUWOE" in BABESSI, the second in NKOUPA MATAPIT, the third day reaching FUMBAN where the ironware was exchanged for cowries, palm oil or a slave. His trade partner might take all or most of the ironware, or invite others to come and buy, or retain the unsold ironware to sell later. His father made very large profits in this trade and rather than carry enormous quantities of cowry shells he purchased palm oil or a slave or both. His trade partner might offer a slave in exchange for cowries or a direct exchange for hoes. If he returned with a slave he might sell the slave either in BABUNGO, BAMESSING or BALI NYONGA. If he brought back palm oil he used to exchange it in BABUNGO for more ironware with a smith. They also returned with a little oil from FUMBAN to give to their "TUFUWOE" to give to their wives.

Another smithing informant described a typical journey to the neighbouring chiefdom of BAMESSING around the turn of the century. He had purchased bloom in BABUNGO market for 200 cowries from which he made 2 hoes (SOVOEKA). In addition he carried another 8 hoes (SOVOEKA) and 10 farm knives. He went with two companions who carried spears, cutlasses and goats. He sold his hoes at 300 cowries apiece and bought palm oil at 300 cowries for a calabash containing approximately 10 litres, and a parcel of dried meat for 100 cowries. He sold his knives at 50 cowries apiece to women in their farms that they passed en route to the market in BAMESSING. He carried a dagger and two spears for his own protection. Returning to BABUNGO he shared out the palm oil to the women in his compound and gave the dried meat to his father to distribute. The sum of cowries that were remaining he kept in order to buy ironware for the next journey the following week. He travelled to BAMESSING market each week throughout the year.

Two overall strategies regarding trade patterns and wealth accumulation emerge from informants' accounts of trade journeys. The first involves repeating the same pattern of trade to the same market until sufficient wealth to acquire a wife had been obtained. The second strategy involved trading in different markets consecutively with BABUNGO as the hub for journeys out.

One informant described this latter pattern of trade in somewhat schematic terms. A smelter, he sold his bloom to smiths and bought ironware. This was carried to OKU and exchanged for honey which was brought back and sold for cowries in BABUNGO. The following week he would buy ironware and groundnuts to carry and sell in KOM markets. Returning with cowries to BABUNGO he bought hoes to sell the following week in BABANKI TUNGO. In this market he bought pigs to slaughter and sell in BABUNGO. Finally he would use the profits in cowries from these trade journeys to exchange in BALI NYONGA for brass with which to acquire palm oil from META sources and make a large profit. It seems likely from these accounts that as iron production decreased in intensity in the first decades of this century BABUNGO traders increased their own participation in external trade.

Currencies

"KA" is the term used in BABUNGO that most closely corresponds to the Western concept of money and included any item exchangeable against any other item in trade to the extent that it operates as a standard of value even when not actually changing hands in a commercial transaction. Cowries fulfilled these conditions precisely as well as being used as a store of value along with other items. Divisibility and low unit value were important element of this concept of KA. A further category comprised items which were "KATOHWOE", ie. money for a person's head, that might be exchanged for a slave. Cloth, certain beads, guns, etc., fall into this category which generally included any trade item of high unit value. All other items in trade were considered to be "VOETOHVOESUSOE", which refers simply to items that might be generally bartered or exchanged against each other in the marketplace.

At the end of the nineteenth century three currencies, beads, cowries and brass rings[32], were in use in the Ndop plain. It is unclear to what extent discrete spheres of currency usage with distinct boundaries actually existed in the Grassfields. Certainly, this was not the case in the Ndop plain where at different times, in different transactions, and at various locations all three currencies were employed.

This situation may be a function of the central position of the Ndop plain at the heart of the wider Grassfields region, itself linked to four distinct zones of long distance trading activity. In its commercial relations with NSO and BAMUM it lay on the fringes of a sphere of regional economic activity dominated by the cowry shell currency of the Adamawa trade; in contact with the

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[32]. These were brass and sometimes iron rods (Hutter, 1900) imported and formed into wrist sized rings.

chiefdoms of the northern BAMILEKE area it dealt with the bead dominated zone of the Douala trade[33]; in trade with the chiefdoms of the western Bamenda plateau it tapped into sources of brass ring currency usage; through KOM it was tied into Benue trade networks.

As an economic zone the Grassfields produced major commodities of interest to external markets including palm oil, ironware, slaves, ivory and kola. Over time the flow of these commodities will have been redirected according to trade conditions and profitability so that in a sense the currency or trading shere does not capture its zone but rather vice versa. This interplay of economic forces is likely to have led to an ebb and flow of the limits of different trading and currency sheres into the Grassfields. Certainly there are suggestions in the data on BABUNGO[34] that early in the 19th century it may have been tied into the Douala slave trade and bead currency zone and that later in the century this was partly overlain by the penetration of an Adamawa Hausa led cowry commercial sphere. This latter penetration may itself have represented the revival of old established trade routes[35] severely disrupted in the 19th century by events in the Adamawa region.

At the end of the nineteenth century the cowry shell dominated the northern Ndop plain markets, although there was some penetration by brass rings for a limited range of transactions. Brass appears to have been accepted as a limited form of currency far beyond its main area of dominance. In NSO, for instance it was thought of as money

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33. Warnier, 1983.

34. Such as the use of the Mbam-Nkam root for slave and accounts of the purchase of the land of the chiefdom with small red money beads.

35. Claims to TIKAR origins may well indicate early sources of prestige trade goods linked to the emergence and elaboration of Grassfield polities.

similar to cowries and known as "MFUI"[36]. Its use as a store of value was probably widely appreciated and its end user value for the brass industry of BAMUM meant that it could be used in trade to acquire high value goods from that area.

Beads remained significant in trade with the northern BAMILEKE chiefdoms, especially in exchanges for high value trade goods such as salt and slaves. This latter area was not, however, an exclusively bead currency zone as cowries were an important element of trade both with Ndop chiefdoms and also BAMUM.

The use of brass rings and cowry shells overlapped at BAMESSING and also to a limited extent at the "border" market of EWINGNGHO. In BAMESSING both cowries and brass rings were in circulation and being exchanged one against the other. This permitted local products of craft specialization, most importantly BABUNGO ironware, from the Ndop area and also prestige trade goods from the north to flow out from the cowry currency sphere and the much needed product of the palm oil belt and European trade goods from the coast to flow back in return. The chiefdom of BAMESSING, notably one of the wealthiest in the region, clearly benefitted from this situation.

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[36]. P.M. Kaberry, NSO fieldnotes.

Beads

BABUNGO and BAMUNKA informants stress that beads preceded cowries[37] and came originally from the direction of the BAMILEKE chiefdoms to the south, and that different types of beads arrived successively from that area and were used as money. Later, when cowries, coming from NSO and BAMUM displaced the use of beads in the northern Ndop plain their use as a currency continued in the southwest of the area. BAMUNKA traders who wished to purchase slaves in the northern BAMILEKE area would exchange a large sum of cowries for some very highly valuable beads in BAMUNKA to take to go and make their trade. It was said that this was done since cowries were simply too bulky to carry in large quantities over great distances.

The importance and extent of bead currency usage in the last decade of the nineteenth century is indicated by the report[38] of Rittmeister von Stetten on an expedition from MUNDAME to BALI in late 1892. He notes that amongst the trade articles most in demand on the way up to BALI were large black and white, and small red beads[39]. Also BALI informants[40] claim that blue star beads "MUSASI" were used for currency and bridewealth. Cowries were also currency and brass rods came in later. This suggests an extended period of interplay between the cowry/Adamawa and bead/Douala trading spheres, only very late in the day

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37. No mention was made by these informants of any earlier iron currency although in BABUNGO the bloom was said to have had some of the characteristics of "KA", money, in that it was easily exchanged for other items in the market and also easily divisible.

38. D. Kbl. 1893 (IV Jahrgang).

39. These are probably the black and white slave beads and the small red "MUNYI" money beads noted by E.M. Chilver, 1961.

40. E.M. Chilver's BALI NYONGA fieldnotes.

affected by a penetration of brass ring currency[41] from the Calabar area.

[41]. E.M. Chilver, 1961, notes that brass manillas were only widely diffused by Hausa traders after the imposition of the Pax Germanica in the area. However, she considers that coiled brass rods did reach BALI NYONGA before the turn of the century if not much earlier (personal communication).

Cowries

These entered the northern Ndop plain from three directions[42]. From the east, Hausa traders brought cowries to FUMBAN, whence local traders brought cowries to BABUNGO to exchange for ironware. From the north cowries arrived along with the NSO trade in cloth. Cowries were also associated with trade with BAGHAM to the south.

Around the time of the first German penetration of the area Hausa traders began to arrive in greater numbers[43] and brought with them much larger quantities of cowries than had previously been available. This is associated with a steady rise in exchange rates, evaluated in cowries, that emerges from informants accounts of trade for the period 1890-1910[44]. However, at the end of this period there was a massive increase in rates[45] of exchange in

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[42]. Johnson, 1970, indicates that cowries did not reach ADAMAWA until the mid-19th century, so it is likely that their usage only spread from the east into the Ndop plain in second half of the 19th century. However, the fact that the iconic and ritual uses of the cowry shell appear so very deeply embedded in the societies of the Grassfields gives some cause for doubt for such a relatively recent arrival unless it is only the currency usage that is recent. Also NSO informants state that "cowries were first brought to NSO by those early traders who went to BUM long before the HAUSAS came", Kaberry, NSO fieldnotes.

[43]. In May 1905 it is said that there were already 500 Hausa families living in BAMUM. (D. Kbl. Vol. 17). Hutter, 1905, mentions meeting a Hausa trader in BABUNGO prior to 1896. He also relates the story of the murder of "BARA" traders, allegedly at the instigation of BAFUT, and the reputation of "BAFUM KATSE" (ESU) as waylayers of traders, evidently before Zintgraff's arrival. Furthermore, Moseley and Flegel appear to signal a Hausa presence in the Mape valley in the 1860s.

[44]. Johnson, 1970, notes a general tendency in Adamawa trade for cowry depreciation at the end of the 19th century.

[45]. Ndop plain informants claim rates for female slaves for example rose to an astonishing peak of some 40,000 cowries for one slave at this time. Tardits, 1973, (continued...)

cowries associated with trade with BAMUM. This was almost certainly the result of the dumping of cowries onto BAMUM markets by Hausa traders that began around 1910. The situation was serious enough to prompt the German colonial administration to issue a decree prohibiting the further importation of cowries and attempting to buy up stocks that already existed in order to protect BAMUM from greater losses[46]. Nevertheless, the use of cowries in the Ndop plain continued well into the period of German administration. BAMUNKA informants state that taxes raised by the Germans through the FON were paid in the form of cowries[47].

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[45](...continued)
also notes that rates for slaves had by 1915 reached some tens of thousands of cowries. This virtual tenfold inflation which applied to all prestige goods is far higher than that reported by Johnson (1970) for Salaga in Ghana where cowry rates for slaves merely double in the period 1874-1892.

[46] In 1911 it was reported that:-
"At the time of the tour through BAMUM (June/July 1911) it has been found that vast amounts of cuari shells are being imported into BAMUM by HAUSSA. There in BAMUM (and in BANSSO) the HAUSSAS find a market to dump this shell money which almost everywhere else in the protectorate has become devalued. In order to protect the BAMUM from substantial losses it will be necessary to decree a general import prohibition of cauris and through the Government buy up the already existing large amounts of shell money."
File no. not known, BI-ANNUAL REPORT 1. APRIL-30. SEPT. 1911, Imperial Station Report.

[47] Other sources suggest this tax was first paid in livestock and then later in marks (Ndop Plain Assessment Report, 1925). Conceivably, the BAMUNKA FON collected cowries in order to purchase livestock from NSO and KOM with which to fulfil his tax obligations, or, even, to exchange for German currency in a market such as BALI NYONGA. This may, in part, explain the virtual disappearance of dwarf cattle from the region which were, according to oral traditions and early German reports once more widespread. Emonts (1927) records that in 1913 per capita tax introduced in 1908/9 stood at 6 marks or two months labour in lieu. At the then current rate he quotes
(continued...)

Each shell had a hole pierced through the top and they were kept on strings made from raffia or plantain leaf fibre. The actual number of cowries to a string seems to have varied widely. BABUNGO informants mention strings ranging from 50 to 80 cowries apiece. In BABA, 10 strings each holding 10 cowries would be joined together to make one long string of 100 cowries, while BAMUNKA traders claim to have threaded 1000 cowries to a string. Not only did the set number of cowries per string differ from place to place but more importantly the actual number of cowries on a string that was supposed to hold a certain number might also vary. Informants explained this in terms of the difficulty of counting each string of cowries in a transaction that might concern 5-10,000 cowries to determine whether each string did, indeed, contain the correct number. This inherent inexactitude in transactions involving high value trade goods provided scope for quite large, but hidden, variation in exchange rates perhaps as much as 10% to 20% of total price.

All sources concur, however, that the most that could be packed into a large raffia bag and carried by one man was the sum of 10,000[48] cowries. As we have seen above the sheer bulk of such large quantities of cowries was a hindrance to their use in long trade journeys. BABUNGO traders journeying to FUMBAN with a large amount of ironware to dispose of were more likely to exchange it directly for a slave or sell for cowries[49] and then buy

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[47](...continued)
of 100 cowries = 10 pfennigs this represents 6000 cowries per annum. At this time cowry rates had already become highly inflated and this sum of cowries would have purchased only two or three hoes made in BABUNGO.

[48]. This would have weighed only c.25lbs which is not an excessive load but the problem was in the bulk not the weight.

[49]. Hutter (1907) noted the use of cowries as small change in FUMBAN market along with slaves, horses, ivory and silver dollars for large transactions.

the slave than carry back a great volume of cowries. On the other hand the facility with which a small number could be dispensed for minor market purchases was an advantage, and might enable individuals with little or no access to sources of wealth to gradually accumulate a reasonable sum.

It seems that the primary role of cowries prior to the large scale influx of Hausa traders was as a universal standard of value. Informants state clearly that cowries did not circulate in great quantities before Hausa traders brought large amounts from the north. Prior to this they had cowries but exchange by barter remained the most common means of trade. A trader in palm oil, for example, who wished to acquire hoes would first offer a price for the hoes in terms of a sum of cowries, the trader selling the hoes would similarly offer a sum of cowries for the oil. The only cowries, if any, that actually changed hands would be the sum necessary to balance the difference between the agreed rates.

The idea of cowries as a universal standard of value was, perhaps, more significant in facilitating exchange than the actual presence of the cowries themselves. The low unit value of a single cowry, in contrast to that of a brass ring may also be significant. The highest profits to be made in trade were at the small scale retail level. For example, a 16 litre calabash of palm oil sold piecemeal might yield profits of between 50% and 100%. Such a calabash purchased in the market in BALI NYONGA might have cost one brass ring[50]. In the absence of low unit value money beads or cowries one would be hard pressed to barter 32 half litre lumps of solidified oil in order to show similar apparent profit in terms of some other trade good available in the market place. If, on the other hand, each lump can be sold for 10 cowries or a spoonful of red money

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[50]. D. Kbl. 1893 (IV Jahrgang), General Report on Baliburg by Lt. Hutter.

beads then it would be relatively easy to realise such profit levels. Hence, it seems plausible to argue that the opportunities for intensification of trade from the bottom up are likely to be greater where cowries are the dominant currency than in markets where the lowest unit value of the dominant currency is some 200 times greater than that of a single cowry[51]. The "small change" function of cowries persisted well into the German colonial period even by 1913[52] when marks and pfennigs were well established and one cowry was equivalent to one tenth of a pfennig.

Apart from their role in trade, cowries were also an important element in bridewealth payments. In BABUNGO and BAMUNKA they formed a part of the bridewealth and in BABA they were said to have been used along with brass rings in the precolonial period. In BABUNGO they were necessary as payments incurred in death celebrations and also for entry to certain associations and lodges in TIFWAN. Finally cowries retained an iconic role in signifying royal status. The wives of the FON wore an anklet of cowry shells to indicate their status and the FON, himself, might have stools, carved with anthropomorphic and zoomorphic figures, that were reserved for his use, decorated with cowries.

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[51]. It should be noted that brass rings do not appear to have been broken up into smaller units in trade, beyond, perhaps, being cut in half, and, also, that the same limitations that applied to use of brass are similarly likely to have applied to the use of a standardised iron currency. Warnier, 1983, considers that this iron currency could be broken up into smaller units. This may well be true but would almost certainly have required the services of a smith which did not come free and were unlikely to be on tap in the market place.

[52]. Emonts, 1927.

Brass Rings

Brass rings entered the northern Ndop plain from the south and west but had limited acceptability in markets outside of BAMESSING. There was a greater penetration in chiefdoms heavily engaged in regional trade, such as BABA where it was used as part payment for bridewealth. In general its use in exchange was restricted to those engaged in trade with BAMILEKE chiefdoms to the south, and through BALI NYONGA and BAMESSING with chiefdoms to the west. To the limited extent that they were in circulation their use depended on an evaluation in terms of their cowry exchange value.

In general conversion took the form of Ndop traders exchanging cowries for brass in either BAMESSING or BALI NYONGA, and western traders coming into Ndop exchanging brass for cowries in these same markets. Having made the conversion the trader was then able to purchase either oil with brass or ironware with cowries. This form of exchange also took place, to a limited extent, in BABUNGO, BABA, and other chiefdoms of the northern Ndop plain.

BAMUNKA informants claimed that brass rings were sometimes used in the palm oil trade with BAMUM[53] but stressed that cowries were the most frequently used media of exchange. The use of brass in trade with the northern BAMILEKE area is emphasised by informants in the northern Ndop plain but equally they stress that it was so heavy in quantity that few traders were willing to accept it in exchange for their trade goods. Brass rings also played an important role in the trade in palm oil from BAFUT to the Ndop plain.

In spite of the problem of weight, brass rings were often brought back from markets such as BAMESSING to be

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[53]. Rein-Wuhrmann, 1925, notes that in BAMUM "the metal (for brass or copper ornaments) was obtained by melting down cartridge cases or by the purchase of BALI money. This means of payment consisted of a five times wound copper or brass spiral, which was worth 50 pfennigs before the war".

stored in BABUNGO, and then taken back at a later point in time to be used in further exchanges. This appears irrational unless it is viewed as a means of preserving a store of wealth since they were not easily usable for local exchanges, nor normally accepted in lieu of cowries. Accordingly, brass rings represented a safe form of encapsulation of wealth that was not readily convertible into anything else within the chiefdom. They might be retained until important needs arose, for instance, for large quantities of palm oil for use in marriage payments, when they were carried to BAMESSING and exchanged for that oil. They might also be kept until the price of a particular trade item had reached a seasonal low point and then used in trade to acquire greater volumes of the item than might otherwise have been the case.

Exchange Rates

All informants stressed that BAMESSING was the main venue for conversion and here the rate for brass rings sought by Ndop traders wishing to go to buy oil in chiefdoms such as BAMBUI was:-

200 cowries : 1 brass ring
150 cowries : 1 brass ring

The higher rate stood when brass rings were in greater demand, for instance, when palm oil supplies were getting short. In northern BAMILEKE chiefdoms traders from BABA exchanged cowries for brass at the higher rate. BABUNGO informants also claim that 200 cowries for one brass ring was the rate of exchange within the chiefdom. In EWINGNGHO, however, BAMUNKA informants claimed a considerably higher exchange rate[54] and that two sizes were present. The rates of exchange were, for the larger and smaller sizes respectively:-

300 cowries : 1 brass ring
200 cowries : 1 brass ring

Although it is possible to discern an ascending rate of exchange from BAMESSING at 150 cowries to EWINGNGHO at 300 cowries these figures should be treated with caution. It is possible that the encapsulation of the cowries for brass exchange within a narrow sector of trading activity, specifically orientated toward a defined set of transactions relating primarily to the acquisition of palm oil, may have tended to promote a more uniform rate of exchange. This rate would have centred on 200 cowries for one brass ring, with a range

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[54]. This may also have been related to demand for brass for cire perdue working tied in with the trade in palm oil from BAMUM, and to a minor extent to the general use of brass for the decoration of spear and pipe stems.

of, perhaps, twenty five percent so that 150-250[55] cowries would have been the limits of variation determined by factors such as availability of brass and fluctuations in oil supplies. These rates would have been more or less constant throughout the Ndop plain area since the use of brass rings was limited to specific markets and orientated toward a particular set of transactions. Their general exclusion from comprehensive transactions in these markets may have sheltered them from factors such as demand and transportation costs which might otherwise have tended to promote non uniform rates of exchange.

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[55]. Hutter, 1900, mentions a rate of one brass valued at 25 pfennig. Emonts, 1927, reports 1913 rates at 100 cowries equal to 10 pfennigs. However, these broadly equivalent rates of exchange are separated by at least a decade in time and also must have been influenced by the Hausa led high inflation in cowry rates from c.1910 onwards.

Conclusions

The examination of the use of different currencies clearly indicates that cowries alone were readily convertible against all other items of trade in the northern Ndop plain. It was the use of cowries as a universal standard of value that, at base, provided the organising principal for trade exchanges both within and outside the market place. In the Ndop plain it appears that brass rings were only used in specific trade contexts and that this centred on border markets where the two currency spheres overlapped.

Beads were only important in the context of trade to specific areas such as the northern BAMILEKE chiefdoms where high value items of trade were to be obtained and distances to be covered were such as to deter traders from carrying great bulky loads of cowries or heavy weights of brass rings. These beads were highly valuable and represented wealth in a concentrated form. Other less valuable beads were likened by informants to cowries since individual units were similar in value and each shared the qualities of divisibility and potential piecemeal accumulation. Such low value beads were, however, not a frequent or significant item in trade.

Convertibility

Relative transportation costs and practical considerations dictated that trade items high in volume and low in value were not exchanged against low volumes items of high unit value, eg. guns were never traded for calabashes. Other items were not openly traded or exchanged because their use or display was restricted to those of a certain rank or status. Certain types of decorated cloth and ornate caps, ivory wristbands, and double gongs were reserved to the FON and could not be openly traded. However, this simply meant that they were not openly traded and did not prevent exchange in private trade. Other items fell into distinct spheres based on sexual division. Accordingly, a gun, strongly associated with manhood was never exchanged for a female slave or any number of female goats.

A whole range of items were simply not available through direct exchange or trade. For instance, tuyères were never sold but only made by those who used them. Grass for thatching was not sold but only gathered by work parties of close kin and neighbours rewarded with food and wine. Raffia fibre for bag weaving, and also cotton for local cloth was simply collected by weavers and not sold. Native medicines used to ward off witchcraft or for healing purposes were only obtained through informal gift exchange.

Bloom, while not traded externally was a significant item of exchange within the chiefdom. It was considered like cowries to be "KA[56]" since, much sought after, it was readily exchangeable even with non smiths. Conceptually,

[56]. The term "KA" refers to any item of trade, including currencies, that was easily exchanged against all other items available in the market place.

it was closely associated with the production of food[57] and so it could be exchanged with similar items, such as a female slave.

In discussing the convertibility of different trade goods it is necessary to distinguish between different levels of engagement in trade and also to separate the normative context of exchanges from what may take place in practice. What this means is that at the level of the specialist trader in slaves the exchange will not only be evaluated in cowries but effected with cowries or high value beads or cloth. A non specialist trader would still evaluate the exchange in terms of cowries but would accept bloom to trade on with. This principle applied equally to the exchange of bloom for ironware and salt.

Informants provided accounts of witnessed exchanges for bloom that included cowries, palm oil, salt, goats, hoes, camwood, cloth, guns and gunpowder, ivory, slaves and high value beads. Trade goods considered unsuitable for exchange included tobacco, raffia bags, raffia wine, clay pots and pipes, kola nuts, groundnuts, charcoal, bamboo for building and stools, honey, game and other foodstuffs. Bloom was categorically never exchanged for "SOVOEKA" hoes, double gongs and brass rings since these items were only dealt with in the context of external trade.

BABUNGO informants stressed the exchange of all types of ironware for cowries, palm oil, salt and slaves. BABA and BAMUNKA informants laid emphasis on the exchange of palm oil for BABUNGO ironware. The same range of items as for bloom were not accepted in exchange for ironware. For the "SOVOEKA" hoe the following conversions were witnessed or undertaken by elderly informants who had been smiths. In addition to the straight exchange for cowries or brass rings they were primarily traded for palm oil. With the

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[57]. While bloom might be exchanged for items associated with providing foodstuffs it could not be exchanged for these foodstuffs themselves, but in the words of informants only for "big market" items.

addition of various sums of cowries or brass these hoes were commonly exchanged for gunpowder, guns, slaves, especially in trade with Kom, many types of beads, and also for different cloths. The exchange of the "SOVOENGO" hoe followed similar lines with some exceptions arising from the orientation of this hoe type to the domestic population of the chiefdom. For instance, smiths accepted baskets of charcoal or groundnuts. In the "official" trade in double gongs undertaken on behalf of the FON the items accepted in exchange included slaves, a type of cloth reserved to the FON and the most highly valued beads. All these items were accepted in the course of "unofficial" transactions, with the addition of palm oil.

Finally, in BABUNGO all items of ironware were exchanged for cowries or other trade goods, but the situation with regard to OKU iron products was very different[58]. In OKU only a small part of the total range of smithing products was exchanged in the market place, the remainder being obtainable only through gift exchange or by the contribution of labour in the process of manufacture. This may be some measure of the relative degree of engagement of the two iron producing chiefdoms in the regional economy.

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[58]. See list of OKU ironware in section on OKU production.

Major Trade Imports

Palm Oil

The distribution of the production of palm oil played a major role in orientating regional trade networks and this commodity represented a highly significant social, political, ritual and medicinal requisite in addition to its mundane culinary use. It was vital[59] to all aspects of life and yet, save for BAMUNKA[60], its production was virtually absent from the plain. This does not mean that there were no oil palms[61] in the plain as the following table extracted from the report by Adametz[62] on the potential for rail exports of produce from the region makes clear.

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59. Its importance seems directly related to the distance from it point of production and, hence, its cost. It does not seem to have been a major element of bridewealth payments in MANKON (W rnier, 198) and similarly hoes did not form part of bridewealth in BABUNGO.

60. "Palm oil : the making of palm oil is almost confined to the BAMUNKA clan who have a monopoly of trees in this area. there are 63 palm oil makers, 59 of whom are in BAMUNKA". Para. 228. Ndop Plain Assessment Report, 1925. There were early, but seemingly unsuccessful, attempts by the German colonial administration to encourage production. "An old order of Hauptmann Glauning's whereby chiefs are under an obligation to plant a certain amount of kola or oil palms annually (depending on the altitude) has again been introduced." F. No. not known, BI-ANNUAL REPORT 1. APRIL-30. SEPT. 1911. One obvious and, perhaps, overlooked reason for a lack of oil palms in the Ndop plain may be the effects of the iron industry in deforesting the area since where there is no forest or forest margins there are usually no palms.

61. For instance, the report of the expedition of Hassert and Thorbecke in 1908 describes BABUNGO as "...von Farmen und Ölpalmen umgenenen Hütten zerstreut und versteckt sind".

62. 1913.

Table 11 Oil Palm Density 1913

Chiefdom	Population	Oil Palms
BAMUNKA	1600	4800
BALI KUMBAT	3200	4000
BAMBALANG	2560	2560
BABESSI	1600	1200
BAFANJI I	1800	900
BABUNGO	2800	700
BAMESSING	1320	300
BABANKI TUNGO	2000	200
BANGOLAN	1520	200
BAMALI	1080	200
BAGHAM	6720	11980
BAFUT	8000	10000

The approximate[63] total of 15,000 oil palms for the Ndop plain is clearly not in the same league as the NGII with 120,000 palms and represents no more than a tiny drop in the ocean of 250,000 palms recorded for the entire region administered from Bamenda.

In BABUNGO palm oil was very highly valued and stored in the ISHIA, the treasure house, along with other valuables. In large compounds six or seven large calabashes of oil might be kept suspended from the ceiling or stored in special large pots stood on the floor. It was kept not only for immediate culinary needs but also in the case of an impending major celebration such as for a birth or marriage. It was given out weekly, piecemeal, by the compound head to each of his wives according to her needs. In BAMUNKA the oil was stored in a special room within the house of the compound head called "MUNKONTO".

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[63]. It seems from Adametz's report that much of this data was collected on the basis of self-reporting and, hence, is likely to be underestimated.

In BABUNGO palm oil formed a significant element in bridewealth payments. Three calabashes, each containing from 10 to 20 litres, were required if less was offered an extra sum of cowries would be demanded. In BAMUNKA a similar quantity of oil was required. In both chiefdoms oil was only one item amongst many, including cowries, that went to make up the bridewealth.

A larger volume of oil was required to celebrate the birth of a child in both chiefdoms. In BABUNGO a prospective father collected three calabashes, containing up to a total of sixty litres, and stored this in his treasure house as the confinement approached to share out to kin after the birth. In BAMUNKA four calabashes of oil were required for gifts made by the father but he, in his turn, received gifts of calabashes of oil from the father of his wife and his own kin. Palm oil appears to have had no prestatory role in mortuary rites.

Payments of oil were also necessary to gain membership of the main political associations of the chiefdom. For instance, the "JAU", "MUNKWANG", "NIKAIWEH" and "VOETUTIFUM" associations subsumed within the BABUNGO regulatory association required not only a large quantity of food, including cooked meat and dried mudfish but also thirty to forty litres of oil, to be shared out amongst the members. Payment of a similar volume of oil was required to become a member of the senior association of smiths, the "VOETUEYOE". In both chiefdoms all associations required a payment of oil for entry with the volume depending on the importance of the association.

Palm oil was used in many ritual and medicinal contexts. No sacrifice to spirits, whether of smithy, compound or forest, or libation to the ancestors, could be performed without some palm oil. Only a small volume of oil would actually be poured over the stones and the rest taken away for culinary use. All dry medicines were mixed with oil before use, either taken orally for stomach pains or rubbed over the body to alleviate general aches. As an unguent oil was used daily mixed with a little camwood and rubbed over the body. When a girl reached puberty she was rubbed all over with oil. It was also common for a successor to a title to be anointed with oil and camwood as part of the installation ceremony.

Palm oil entered many other areas of social life. It was commonly used as a gift in return for sexual favours. Someone taking a dispute to the FON for resolution would first offer a calabash of oil to gain his good will. In BAMUNKA oil produced in the compound might be shared to lineage members and friends and once a year all producers took one calabash of oil to the FON who gave it out to his wives, daughters and to strangers coming to settle in the chiefdom. It was also an important means of facilitating trade and exchanges. It was common in BABUNGO for a smith to accept oil for ironware and then use the oil to exchange for something else.

In terms of volume it is as a culinary item that oil was most significant. In the precolonial period frying or sauteeing were not practised but informants claim that more oil was used then than now with a large amount simply added to the sauce with all the other ingredients. Given the importance of culinary use of oil it would be useful to have some idea of the average consumption. However, there is no way to accurately gauge, from informant's statements, the volume of oil a domestic unit might have consumed on average over a set period. Nevertheless, there is a consensus among elderly informants that contemporary consumption of oil is roughly half of what it was in the precolonial period. Contemporary average[64] consumption appears to be less than a litre of oil per woman per week. Formerly, it is said to have been between one and two

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[64]. This figure is based on the observation of market purchases of palm oil for domestic consumption and a completely unscientific survey of neighbours and friends.

litres per woman per week[65], according to whether oil was plentiful or scarce. It is not altogether surprising that oil consumption should have fallen heavily since the main product traded for it in the precolonial period, ironware, has been largely replaced with imports of cheap European hoes and machetes.

The estimated figure of one to two litres of oil per woman per week may seem over inflated in the light of the work done by Kaberry[66] on contemporary oil consumption. She recorded a twelve fold difference in levels of consumption between NSO, where no oil was produced, and ESIMBI, a centre of oil production. In the former, only one quarter pint per woman per week was used, while in the latter it was as much as three pints. She noted also how the level of consumption decreased with distance from the areas of production to the west of the Bamenda plateau. Two sets of factors may throw light on this question.

Firstly, the northern Ndop plain was an extremely prosperous area prior to imposition of German rule. In 1889, Zintgraff[67] noted the wealth of BABUNGO and even in the 1920s when iron production was greatly diminished the markets of BAMESSING and BABUNGO ranked second only to those of BALI NYONGA and KUMBO[68]. Further, informants on the western Bamenda plateau indicate that in precolonial times, huge quantities of oil were carried to the extremely rich Ndop plain chiefdoms in exchange for slaves, salt,

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[65]. Warnier, 1983, estimates the average consumption on the Bamenda plateau in the 19th century to have been between ½ and 1 litre per woman per week.

[66]. 1952.

[67]. 1895.

[68]. Economic Report, 1922. In a similar vein the 1929 Quarterly Report for the Bamenda Division included a census indicating that the average number of people in a compound in the Ndop plain was 14.9 while in NSO it was only 6.8.

iron, and blue Batik[69]. Also, genealogical evidence shows that large numbers of slaves were being drained out of regional trade networks and incorporated into BABUNGO iron working households. While this represents the satisfaction of a great need for labour it also indicates a degree of disposable wealth that was, perhaps, not matched elsewhere in the region.

Secondly, the "oil belt[70]" to the west of the Bamenda plateau was *neither the sole nor even the major source of* oil for the northern Ndop plain. All data point to BAMUM as the major source of oil carried in by specialist traders from BANGOLAN, BABA, BAMBALANG and BABESSI. This oil was largely acquired in exchange for ironware from BABUNGO for which BAMUM seems to have had an almost insatiable appetite. It is not possible to quantify exactly what percentage of oil came from which particular source[71]. However, the accounts of informants suggest as much as 60% came from BAMUM, and c.30% from western sources via BAMESSING, BABANKI[72], and BALI NYONGA intermediaries. The remaining portion represented a trickle of oil coming from

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69. Warnier, 1975.

70. Warnier, 1975.

71. Warnier, 1983, suggests that the chiefdoms of the western Ndop plain got roughly half their supplies of palm oil from both western and eastern (BAMUM) sources.

72. Diduk (1987) confirms a general pattern of trade of ironware for palm oil between both BABANKI chiefdoms and META and BAFUT. Unfortunately, she seems unaware of BABUNGO and its importance as a major centre of iron production and, perhaps, mistakenly attributes the BABANKI trade in ironware to heavy local production.

WUM via KOM traders, and from northern sources via NSO[73], and also the limited local production of BAMUNKA.

If we extrapolate[74] population figures for the immediate precolonial period from the census of 1953 we get a rough figure of c.7000 adult women for the entire Ndop plain, including OKU. Basing consumption on information gathered in BABUNGO, BABA and BAMUNKA at one and one half litres of oil per woman per week gives a total annual consumption of c.520 tonnes. It is almost certainly false to base consumption estimates for the whole of the Ndop plain and OKU on figures for consumption from only three chiefdoms. However, even if this estimate is halved there remains an enormous volume of oil entering the Ndop plain at the end of the nineteenth century. Perhaps, c.132 tonnes from BAMUM and c.78 tonnes from the west, annually[75]. These figures are not at all precise, they are presented only to give an idea of the order of magnitude of the volumes of oil flowing through regional trade networks that bear a direct relationship to the enormous levels of output of BABUNGO ironware. The closeness of this relationship is borne out by the fact that the independently estimated average annual output of BABUNGO ironware, ie. c.65 tonnes or c.30,000 hoes,

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[73]. It is worth noting that until Banyo raids disrupted the Mape valley this was an important oil source for NSO. The oil hunger of the NKAMBE plateau chiefdoms involved them in considerable journeys to MBEMBE and MFUMTE as well as BAMUM, where slaves were taken by NDU. NKAMBE appears to have been a market for MFUMTE oil (personal communication from Sally Chilver).

[74]. See Warnier, 1975.

[75]. Warnier, 1983, estimates total annual oil production for the western producing areas, including MOGAMO, BAFUT, MUNDUM, META, NGIE, and WIDEKUM at 1250 to 1550 tonnes. Such levels of production would easily cover the higher figure of 156 tonnes estimated as 30% of the Ndop plains annual requirements.

represents c.240 tonnes of palm oil valued at the rate of 8 litres per hoe in a BABUNGO market.

Clearly, a great volume of oil was required to service the northern Ndop plain. Only BAMUNKA produced it in significant quantities, while BABUNGO production was virtually non existent and certainly none reached the market. Given the level of demand and the lack of any ecological barriers to the oil palm what were the constraints inhibiting the development of local production?

In BABUNGO, in the precolonial period, each compound had a few palms but in only a handful of cases were there sufficient trees to make production of oil worthwhile. Some trees were planted but most were self-sown and little cultivation was practised apart from removing lower branches at an early stage to allow other crops to grow beneath. While the tree was small a compound head cut his own few cones of palm nuts. Later when the tree reached a good height a specialist cone cutter would use a primitive ladder[76] to reach the ripe cones which were cut and divided equally between compound head and cutter and usually eaten as a sweetmeat. If a large quantity of cones was collected in one of the few compounds with a dozen or more palms then there might be some production of oil.

Techniques used in BABUNGO and BAMUNKA were more or less identical and there are common traditions linking the introduction of these techniques from BAMUM in the middle of the last century. The first step was to boil the nuts in water for two hours and allow them to cool. They were then placed in the hollowed out trunk of a tree where they were mashed either by trampling underfoot, or with a wooden pestle. Water was then poured into this container and the kernels rubbed between the hands and discarded leaving the shells which were squeezed to express the oil

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[76]: This was a length of bamboo with a small cross piece attached at the top to hook onto the branches of the tree. The use of a ring of rope was only introduced in the 1930s by migrants from NKAMBE.

which rose to the surface of the water. This was skimmed off by hand, put into a pot and boiled. Any shells remaining in the oil were removed and it was ready for use. Only pericarp oil was extracted since methods of extracting kernel oil became known only in the colonial period. In BABUNGO, production was never more than a very occasional activity, often directed by a slave who would otherwise spend his time in iron working. Informants claimed that even if they had many palms they would not have wished to spend time making oil which they might otherwise pass more profitably in iron production.

Apart from preoccupation with, and investment of skills in, iron working it is unclear what internal constraints inhibited the development of palm oil production. It might be argued that a population highly compacted within the fixed bounds of a system of defensive trenches limited available farm land so as to militate against cultivation of palm trees. However, in the 19th century firewood trees, larger and more shady than palms, were widely planted to provide fuel for smelting. Further, apart from splitting the trunk to provide roof supports, other uses[77] of the palm are unlikely to have greatly affected the production of nuts and tapping for wine, which did reduce yield, only began in the colonial period. Presently, the oil palm is commonly planted in BABUNGO and production of oil a more frequent[78] activity.

BAMUNKA production was on an altogether larger scale and according to local informants, satisfied almost half of its annual requirements. In contrast to BABUNGO, the

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77. These included taking dead branches for firewood, cotton tinder from the leaves, rope from the branches for tying firewood and fences, and a cockroach trap made from the flowers.

78. No data are available to provide the basis for an estimate of the proportion of domestic needs for oil provided by local production. It is likely still to be very low. However, certain individuals are beginning to plant and cultivate the oil palm in large numbers.

specialist cutter was not given half the cones but rather one quarter of the oil produced from them. Production was orientated toward domestic consumption but some oil did reach the market of EWINGNGHO where it sold for as much as double the price of oil from BAMUM because of its superior quality.

In the league of local preferences BAMUNKA oil came top and was highly valued for its fine fresh taste and scent, and the fact that it was not watery and stored very well. Following BAMUNKA oil, was BAMUM oil, followed by that from NKAMBE sources, then oil from META[77] via BALI NYONGA, and finally oil from WUM which was said to be cheap but very poor quality.

All indicators point to BAMUM as the major source of palm oil for the northern Ndop plain at the end of the nineteenth century. This was carried by traders from BABA, BANGOLAN, BAMBALANG, BABESSI and BAMUNKA who took BABUNGO ironware to FUMBAN, either to sell for cowries and buy oil or to exchange directly for oil. BABA and BANGOLAN traders sold the oil in all northern Ndop markets and also carried some to KUMBO. BAMBALANG, BAMUNKA and BABA traders sold oil in EWINGNGHO, which was a major centre for this trade. BANGOLAN traders sold oil through the BABUNGO market, EWINGNGAI, and some of this oil filtered through to KOM. BAMUNKA oil is unlikely to have made much impression on overall regional supplies. A little oil trickled down from the ESU area via OKU but this, too, was probably insignificant relative to the major sources feeding the Ndop plain. Apart from BAMUM the only other significant source of palm oil was that traded to the Ndop plain through intermediary chiefdoms on the western Bamenda plateau.

This oil was expensive which is not surprising when the numerous hands it passed through, in a form of chain-

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77. This palm oil came predominantly from NGIE and MOGAMO sources.

link trade, is taken into account. A single calabash of oil might pass from its source through BALI NYONGA, BAFRENG, BABANKI TUNGO, and BAMESSING intermediaries before reaching BABUNGO. Informants stress how much cheaper this oil became when the German administration opened up the road between BALI NYONGA and western sources of oil. Prior to this it had not been possible for Ndop traders to penetrate beyond BALI NYONGA.

Oil prices varied according to seasonal fluctuations in supplies. BAMUM rates rose by up to fifty per cent in the middle and end of the dry season. Prices were highest at the start of the rains when demand for hoes also reached a peak. Precise figures for exchange rates for oil at the turn of the century are hard to assess. Rates not only fluctuated on a seasonal basis but also from week to week according to how well a particular market was attended. On the basis of informant's accounts of trade some general statements regarding exchange rates can be made.

A BANGOLAN trader carrying oil from FUMBAN to BABUNGO would sell eight litres of solidified oil in small chunks for a total of c.200 cowries in the rainy season and c.300 cowries in the dry, roughly a 100% mark up on the price paid in FUMBAN[80] but when larger quantities were sold in single transactions a thirty to fifty percent mark up was more usual. These percentages do not represent net profit since no account has been taken of the costs incurred in making the trade journey. Within BABUNGO one "SOVOEKA" hoe would be exchanged for c.8 litres of oil or sold for c.300 cowries, and fetched c.500 cowries in an external market. When oil was dear, a 16 litres calabash might be exchanged for three hoes of this type. BABUNGO traders acquiring oil from BAMESSING and BALI NYONGA seem to have

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80. Cowry rates for hoes in BAMUM given by Tardits (1980) appear to be wrong by a factor of ten so that his figures suggest that in 1924 a labourer in FUMBAN was paid the equivalent of 12 hoes for one days labour.

gained similar profits, ie. c.50%, as for the trade to FUMBAN. In BAMESSING, eight litres of oil would be exchanged for one brass ring. In 1892 in BALI NYONGA a 12-16 litre calabash of oil was exchanged for one brass ring[81]. The exchange rate for brass rings against cowries stood at between 250-300 cowries. Clearly, we do have a degree of consistency in these rates but there is no obvious expression of the different costs of transporting oil from western and BAMUM sources. In this respect it must be noted that there was plenty of scope for hidden profits in that not only did calabashes not come in standard sizes but also that the actual size of a hoe was variable.

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[81]. "General Report on Baliburg" by Lt. Hutter, D KBL. IV Jahrgang, 1893.

Slaves

Trade in slaves has two vital points of reference for this study. Firstly, it is significant in relation to the expansion of iron production in BABUNGO in the second half of the nineteenth century through the incorporation of males directly into the labour force and the absorption of female slaves as wives and cultivators into the food production base. Secondly, the recording of slave origins in genealogies provides important pointers to past patterns of trade.

There is an interesting contradiction between descriptions of the cruel conditions of the slave trade and the benign conditions of slaves once purchased. The trade is portrayed as inhumane with small infants caged in baskets and adults bound in bamboo yokes. In two markets[82], at least, in the northern Ndop plain there were slave lines where potential buyers examined the slaves as though they were livestock.

However, an individual acquired as a slave was not merely some chattel to be disposed of at the whim of the purchaser. Domestic slavery resembled more a form of commercial adoption and ought to be set next to the practice of fostering children with wealthy patrons, or the return of a child to the father of the wife where no bridewealth had been paid or, even the payment of bridewealth for a wife[83]. In all these cases rights over people were wholly or partly transferred in return for some item or service of value.

In BABUNGO, while a male slave occupied the lowest rank of male society he was not excluded from it and his position differed little from that of a junior brother of a compound head. A trusted and hard working slave would be

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[82]: The BABUNGO market of EWINGNGAI and also BABESSI market.

[83]: Warnier, 1983, sees a continuum between familial rights and those linking a master to his slave. See Kopytoff, 1982.

treated as a son and might have a voice in family and lineage affairs. Normally a slave could not succeed his master but if there were no son then this might and did occur. A male slave, purchased as a youth, would be taught the occupation of his master. It was common for a young male slave of a smelter to be taken to the foundry instructed in the work and eventually undertake the role of "WOENFIIBUU"[84]. Just like a son he was expected to hand over the bloom or cowries he earned to his master but he would also expect, like a son, to be fed and given cloth and a wife, either a female slave or a freeborn woman.

However, the bridewealth derived from giving out in marriage the female issue of such a union would go to the master and not the male slave who received only a small gift. A successor to the original master also inherited these rights to the bridewealth arising from marriage of daughters of the slave[85]. In fact, a man succeeding as compound head took all his fathers' slaves, who were not shared out. Only the older female slaves taken as wives would be given to others, in this case to brothers of his father and such brothers would retain the bridewealth derived from the female issue of their union. The children of male slaves were of low status but, significantly, entered the regulatory association and were no longer addressed as slaves[86].

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[84]. The celibate specialist smelter permanently resident in the foundry.

[85]. This resembles BAMILEKE "TANKAP" marriage practises and was closely associated with the barren FON NYWIFON (?-c.1870) who is said to have used wealth from iron production to purchase male and female slaves from northern BAMILEKE sources which he married together in order to fill the ranks of the royal lineage.

[86]. In fact, no one was ever addressed as "slave", ie. "VOEBUU", but only as "my person" rather than "my son" by the master.

As wives, female slaves were highly valued since they were believed to give less trouble than a BABUNGO woman, who might always return to her fathers' compound if she became dissatisfied. A female slave came with no strings attached and apart from annual sacrifices of oil, fish and wine at the crossroads leading to her place of origin there were no other obligations. Arising from this, bridewealth for a daughter of a female slave would be higher than usual since there would be no MF's lineage or kin requiring gifts and services.

The acquisition of slaves operated in the sphere of wealth accumulation at three levels. Firstly, purchasing a male youth or adult and putting him to work in the occupational domain of his master served simply to increase his labour force. Secondly, acquiring female slaves and taking them as wives served to increase the labour base for the production of foodstuffs and so provision the male compound labour force, as well as increasing the available labour through subsequent male offspring. Thirdly, since bridewealth from the marriage of daughters of male slaves went direct to the master, the acquisition of slaves in the first instance served to further concentrate wealth in these hands.

The two markets with open slave lines, BABESSI and EWINGNGAI were mainly outlets for slaves from BAMUM. Not all slaves traded in or through the Ndop plain passed through these two markets since specialist slave traders commonly sold slaves in private transactions[87] or carried them out of the area altogether. One informant, active in this trade, bought slaves in NSO, northern BAMILEKE chiefdoms, BAMBALANG and KOM, and sold in BALI NYONGA and

[87]. Schmidt, 1955, states that a slave trader in BAMESSING might have from 5-10 slaves on hand at any one time.

in his own chiefdom of BABA. Traders from BAGHAM[88] and BAMUM brought slaves to sell privately in BABA. BAMUNKA informants mention northern BAMILEKE chiefdoms, BAMUM, KOM and BAMESSING as sources for their slaves. It was also common practice for foreign traders to deal privately with BABUNGO smiths exchanging a slave for ironware, especially double gongs.

The extensive nature of private trade in slaves undertaken by specialist traders was described by a BABA informant active in the trade at the turn of the century. On his first journey he carried three fathoms of the tie-dyed "NDRUNKUU" cloth, on behalf of his patron, to a northern BAMILEKE chiefdom where he exchanged it for a female slave. He brought the girl to his patron but refused any payment or reward. This paid off subsequently when the patron gave him a large keg of gunpowder to sell and from which he was able to make great profit. On another occasion he went to NSO and bought nine fathoms of the same cloth with cowries which he carried to the northern BAMILEKE area to exchange for three slaves that he took on to BALI NYONGA to exchange finally for a very large quantity of European cloth.

On the last occasion that he went out to trade in slaves a friend had brought an adult male slave whom he was unable to pacify. The informant, a tall and formerly robust individual, subdued the slave, tied him with a rope and put him in a bamboo yoke and led him to BALI NYONGA where the slave was sold for six German marks and five fathoms of German cloth. His profit was one mark. At this point he stopped going on such journeys himself but did send agents on his behalf making approximately ten percent profit on each transaction usually in the form of

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88. BAGHAM appears to have played an important role in trade between BAMILEKE and Ndop plain chiefdoms. Even as late as 1918 its chief was described in an Annual Report for the Bamenda Division as the biggest slave dealer in the area.

European cloth[89]. The description of this individual's trading exploits clearly indicates the multifocal nature of trade undertaken by specialist traders and the very high profits to be made in conveying goods between different spheres of trading activity. Ultimately this form of commercial activity rested on the production of commodities, such as iron, that incorporated the maximum value per unit weight so that it was possible to enter the regional system of exchanges and conveyances at the highest level.

Genealogical evidence for the incorporation of slaves into BABUNGO iron working families in the nineteenth century indicates a similar diversity of origins. The father of one informant, a smith making double gongs both "officially" for the FON and also clandestinely, had trade links with the FON of KOM. He purchased eleven slaves in his lifetime, four males and seven females[90]. He married two of the females to two of the male slaves, the remaining males were married to BABUNGO women. Another female was given as a wife to his brother. The father took the remaining four female slaves as wives. Five of the slaves were sold to him by KOM traders, their ultimate origin being unclear. Two others originated in WUM[91], one sold by a KOM trader, the other a gift by the FON of KOM. Two more came from BAMUM bought from BANGOLAN traders. Finally, one slave each was brought by traders from BAFUT and BABADJU.

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[89]. Schmidt, 1955, gives some rates for exchange of slaves for European cloth in BAMESSING:- one male for 10*5m, a female with a babe in arms for 15*5m, a woman with a small child for 20*5m, a woman with a child of 8 years and up for 25*5m of cloth.

[90]. Including the mother of the informant,

[91]. It is noteworthy that the paternal ancestor of this informant was himself said to have been originally a slave from WUM.

The father of a second informant, another smith, had six slaves in his compound. Two were males bought as children in EWINGNGAI from BANGOLAN traders who had acquired them in FUMBAN. These two youths were taught to smith. The other four were all females taken as wives by the father. Three came from BAMUM brought by BANGOLAN traders and sold in EWINGNGAI. The fourth had been sold for a large sum of cowries by her father, a man from KOM[92] whose village had been struck by famine[93]. No ties with the lineage of this woman were maintained and only the usual annual ritual sacrifice of oil and wine by the roadside was made.

The father of a third informant, a smelter and senior palace retainer, who represented the chiefdom in dealings with BALI KUMBAT, had acquired seven slaves by the time of Zintgraff's passage in 1889. Four were bought before the succession of FON SANGGE, ie. before c.1875, in the reign of FON NYWIFON. One, a young male from BAMUM acquired in the market at BABESSI, was put to work in the fathers' foundry and was given a wife, a female slave also from BAMUM and bought in BABESSI. The third was a male child

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[92]. This is a common theme in BABUNGO accounts of the trade in slaves. KOM informants claimed that "In olden days if a woman refused to marry a clan member of her deceased husband then she might be sold as a slave by the heir. Also if a son was strong-headed he might be sold by his father but his Mbr. could not sell him since he was another man's child". (E.M. Chilver, KOM fieldnotes). KIJEM informants make this even more explicit "we also raided for slaves, eg. in MEJUNG valley, and sold them to BABUNGO. Even some KIJEM men sold unwanted daughters to BABUNGO". (E. M. Chilver, BABANKI fieldnotes). Interestingly, in an account that appears to entirely ignore the economic role of neighbouring BABUNGO, Diduk (1987) relates that her informants were reluctant to discuss the incorporation of slaves and slave trading.

[93]. A famine sale, described as not unusual, is recorded by Emonts (1927) from TANG-MBO (TABENKEN). This followed a Fulani raid, in which maize stores were destroyed. The informant's mother, a gift from NCHANTI to the chief of TANG was eventually repurchased c.1899-1900.

bought in BABESSI who was brought up in the compound and shown how to smelt. He was made "WOENFIIBUU" and did this work for a considerable period of time and when he was tired of it he, too, was given a female slave bought in BABESSI from BAMUM traders, as a wife. Later he married two BABUNGO women and the father helped him to establish his own compound. The remaining three were females bought after c.1875 and taken as wives by the father. One was acquired from BALI KUMBAT, another from a KOM trader in BABUNGO, and the third in BABESSI market from BAMUM traders.

These three informants, alone, do not represent a sample from which accurate statements about other lineages and compound groups might be made. However, it is striking that the compounds of these informants were not even amongst the largest in the chiefdom. They come a long way behind the FON and BA with palatial residences, and the most senior ranking titleholders of the chiefdom with extremely large and populous compounds, and even the larger smithing compounds. Nor was it exceptional to find slaves absorbed into the labour force of both smiths and smelters and informants had no difficulty providing lists of named slaves working in the smithies and foundries of their neighbours. The majority of these came from BAMUM, acquired from BANGOLAN traders, illustrating both the main direction of BABUNGO output of ironware and the important intermediary role undertaken by neighbouring chiefdoms.

The range of items accepted in exchange for slaves varied widely according to the location and parties to the exchange. In BABUNGO the trade items considered to be "KATOHWOE", ie "money for a person's head", included bloom, guns, gunpowder, beads, cloth, salt, ivory and oil. Ironware, most notably "SOVOEKA" and double gongs, but including all hoe and cutlass types, were also commonly used in exchange. If famine struck neighbouring chiefdoms slaves were exchanged for guinea corn and maize. Items exchanged in transactions witnessed by BABUNGO informants included fine caps, fine cloth, hoes and cutlasses, guinea corn with cowries, high value beads, brass rings, guns, gunpowder, ivory wristbands, large cone baskets of salt, cowries with goats, guinea corn with goats, and cowries alone.

These listed transactions occurred between parties neither of whom was solely a dealer in slaves. Specialist slave traders[94] were relatively few in number, perhaps only half a dozen in each of the larger Ndop plain chiefdoms, all of whom knew each other[95]. The range of items accepted by a specialist slave trader was limited. They would not generally accept mundane ironware, palm oil, goats, bloom, guinea corn, maize, caps or camwood, but rather insisted on cowries, brass rings, guns and gunpowder, high value beads or cloth, ivory, cone baskets of salt, and, perhaps, double gongs for his wares. By so doing he maintained his level of engagement in trade at the higher tier of low unit volume high value commodities and, hence, avoided the higher transportation costs incurred at the lower level of trade in goods such as ironware, palm oil and livestock.

Exchange rates for slaves fall into two distinct groups. The first comprising relatively stable rates current in the second half of the nineteenth century. The

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[94]. The use of a slave "rope" given out by the FON to authorise slave dealers, described by Warnier (1975, 1983) for the Bamenda plateau, was known and could be described by elderly BABUNGO informants. However, in the final decades of the nineteenth century it was no longer in use and no instances of its possession by any BABUNGO descent group were found. It seems to have lapsed at an earlier juncture when the centripetal tendencies of settlement compaction and political centralisation had reached a point where the "vente de siens" as a means of acquiring prestige goods was counterbalanced by the rising needs for manpower engendered by the growth of momentum in the development of the iron industry. These needs, in turn, created a strong demand for the incorporation of slaves into the chiefdom that was only satisfied by the commercial efforts of specialist slave traders but these were not associated with a slave "rope" or authorisation by the FON.

[95]. Schmidt, 1955.

second were rates current after the German penetration of the region and the large influx of Hausa traders bringing cowries in greater quantities than had previously been available. These rates were considerably higher and appear to have continued to rise until the trade finally ceased at a point in time well into the period of German administration.

In the earlier period rates in BABUNGO, centred on 4-5000 cowries for an adult female slave and 3-4000 cowries for an adult male. Generally females were more highly valued than males, with a preference for female children, who were sold for c.5000 cowries and more. A similar spread of rates occurred in BABA where traders from BAMUM and BAGHAM sold slaves for 5-6000 cowries. Rates quoted by informants in BAMUNKA ranged between 5000 and 7000 cowries. Rates in cowries might rise to 10,000 cowries, especially in markets such as BABESSI. Informants stressed that within the limits of 3000 to 10,000 cowries rates fluctuated frequently according to the numbers of slaves available in any particular market and the spot demand.

In BABUNGO cowries combined with ironware, or ironware alone were exchanged for slaves. In one instance witnessed by an informant 32 "SOVOEKA" hoes were exchanged for one female slave brought from BAMUM by BANGOLAN traders. In another transaction 16 cutlasses and 2000 cowries were exchanged for a female BAMUM slave. Traders from BANGOLAN also took slaves to OKU where similar rates prevailed, 30 hoes for a female and 10 hoes with some cowries in addition for a male. In other witnessed transactions in BABUNGO cowries, together with ironware or other items, provided the major part of the value exchanged for a slave.

The very high rates that were current in the early part of the present century were probably due to a combination of factors. There seems to have been a general rise in exchange rates for all trade goods linked to increasing volumes of cowries in circulation. Also, the imposition of German administration and plantation labour may have led to a progressive drying up of sources of slaves which increased the value of the few remaining slaves in the trade networks. Hence, in this period a great deal of cowry currency was chasing an ever diminishing supply of slaves and rates rose to very high levels. However, the relative values of male and female slaves remained constant. The father of one BABUNGO informant paid 40,000 cowries for a female slave from KOM but only 20,000 for a male in BABESSI. In BAMUNKA 30,000 cowries were exchanged for a young female slave and 20,000 cowries for a male youth.

This enormous inflation of cowry rates for slaves was mirrored in increased rates of exotic prestige trade goods exchanged against slaves. Whereas earlier, in BABUNGO, one or two guns were exchanged for a slave the rate now rose to 5 guns for a male slave acquired in EWINGNGAI from a BABESSI trader in the early part of this century. Similarly, 3 kegs of gunpowder, instead of a single keg plus some cowries, bought a male slave in EWINGNGAI from a trader from BAMBALANG. The trade continued until the introduction of German currency when rates were 12 marks for an adult female slave and 9 marks for an adult male.

The incorporation of slaves into BABUNGO iron working households served primarily as a means of concentrating wealth. This was effected indirectly through bridewealth payments and rights over offspring, and more directly through increasing labour inputs into the production base for ironware for trade, and for foodstuffs with which to provision the household. Moreover, to a very large extent it was the size of the household that was understood to be the major principal underpinning ones' social standing within the chiefdom. It was this that gave one a voice in the affairs of the chiefdom, that could not be ignored, regardless of actual rank and title.

Cloth

In the Grassfields cloth was an important means of display of social status and prestige. The FON and senior titleholders, alone, were entitled to wear certain rare and valuable types of cloth. Envoys of the FON carried fine cloth to don when approaching the palace of their destination. At the other end of the social scale a son not only expected his father to provide him with a wife but also a loin cloth made from bark or locally woven cotton to signify his adulthood. In between these extremes there was a range of cloths of differing values worn by men on public occasions such as market days or major chiefdom festivities. These included cloths worn by members of private associations in the performance of dance at mortuary celebrations and other occasions for the display of wealth and prestige.

The scale of values for cloth extended from the very costly cloths[96] reserved to the FON to cheap European cloth, worth only a fraction of the value of the former[97]. This was an indigo-dyed cloth acquired by NSO traders from BUM and other northern sources in exchange for kola. BABUNGO and OKU traders exchanged ironware as well as cowries for this cloth in NSO which appears to have largely depended on these sources for its ironware. However, exchanges of this costly cloth witnessed by BABUNGO

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[96]. These were "NDIKON" in BAMUNKA, "NDRUNKUU" in BABA, "NJUSSOEKONG" in BABUNGO. It is significant that this cloth called "NJUSSOEKONG", or KOM cloth, in BABUNGO was termed "NJI NDOP", or Ndop cloth, on the Bamenda plateau. The mention by one informant of Koelle from "PARAM", of the river "NEN" coming from "KOB" in the east "where very fine blue bast ..is made" is intriguing in this context. It suggests an early trade in cloth from Benue sources via KOM to the northern Ndop plain through to the Bamenda plateau, perhaps in return for a flow of ironware in the other direction. The use of a conventional hoe currency in Wukari, termed "AKIKA" (Chilver, 1961.) and the BABUNGO term for the trade hoe, "SOKA", sing., is highly suggestive of such links.

[97]. Chilver, 1961.

informants only ever involved other highly valued items such as double gongs, slaves, cowries and brass rings. Cheap European cloths and simple plain white cloths of local manufacture were commonly exchanged against a wide range of second tier trade goods including ironware, palm oil, camwood, caps, guinea corn, bloom, livestock, kola, honey and dried mudfish.

The most costly cloth was sold in hand width strips each three fathoms in length and exchanged either for a slave or a pair of large double gongs, or some thousands of cowries. At the other extreme locally produced undyed strips sold for c.50 cowries for a half fathom strip, six of which were required to make up a loin cloth. It is interesting that on the one hand cloth was not displayed for sale in the market, was mostly very costly and owned by relatively few individuals and, yet, on the other hand there was evidently a wide and detailed knowledge of cloth types, sources and costs. This may indicate that although most men made do with locally woven plain undyed cloth for loincloths, or used barkcloth, the use of finer imported cloths was an major element of display of status and prestige by those of rank, wealth and title.

Beads

Although no beads were manufactured locally[98] they shared many of the characteristics described above for cloths. There was a similar range in values from very cheap beads used as small change in market transactions to very costly beads[99] that were exchanged for slaves and so fall into the category of "KATOHWOE". They came from the north, via NSO and KOM, and were similar to the most valued cloth in so far as they might only be publicly displayed by those of the highest rank. Unlike cloth, however, beads were a very functional element of regional trade networks overcoming the problems posed by the sheer bulk of large volumes of currencies such as cowries and brass rings that were required to purchase costly prestige trade goods and slaves.

The highest value beads were commonly exchanged for slaves, guns and double gongs. A string of 30-40 beads for a female slave, c.20 beads for a male. A similar string was exchanged for two guns. One BABUNGO informant witnessed the exchange of a string of c.30 beads for 5 medium sized double gongs with a trader from KOM. These beads were also used singly or in small numbers. A BABUNGO smith might exchange a "SOVOEKA" hoe for 2 beads or 3 "SOVOEKA" for 5 beads.

A whole range of less valuable beads circulated in markets and were commonly used for exchange purposes and also for personal decoration by men of wealth and title. One type of red bead, called "MBANGNSHIA" in BABUNGO, with a unit value equal to one cowry was said to be the first currency that the original founders of the chiefdom brought

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[98]. Although it is technically feasible to produce silicate "glassy" beads from iron slag in the bloomery process there is no evidence as yet that this was practised in the Grassfields.

[99]. Termed "WEH" in BABUNGO, "SAKINCI" in NSO, "TOK" or "TOOSHI" in BABA.

with them and used to buy the land from the indigenous population. Informants stated that these beads were used in large numbers to purchase slaves in trade directed to the coast via BAMILEKE chiefdoms. However, at the end of the nineteenth century they were more commonly used for personal adornment in the form of necklaces worn by men.

There were many types of beads in circulation in the Grassfields.[100] In BAMUNKA, for instance, a red and white bead called "MOEYOH" was used to buy slaves at c.50 beads for a male. Two other types were said by BAMUNKA informants to be used for bridewealth payments in northern BAMILEKE chiefdoms and traders wishing to acquire slaves there first exchanged a large volume of cowries in BAMUNKA for a few of these very highly valued beads before taking them to northern BAMILEKE chiefdoms to purchase the slave.

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[100]. For a detailed description of high value imported beads see E.M. Chilver, 1961.

Guns and gunpowder

Guns were a costly prestige trade item and closely associated with the trade in slaves[101], rates of exchange suggest a close equivalence in value. Often the same traders dealt in both items. Clearly, there were very large profits to be made and a great deal of trade capital was required in order to acquire kegs of gunpowder or individual guns. It is in this light that the association of trade in slaves and trade in gunpowder and guns[102] ought to be viewed.

The social significance of the ownership and display of a gun was on a par with their functional use[103]. The possession of a gun was virtually a prerequisite for compound headship and it was the first item a man sought out upon succession. Young palace retainers selected for extended service were rewarded with a gun when they had completed their training. On the occasion of a major chiefdom celebration every compound head took his gun to the palace dancing field. The men of each ward danced together making mock charges at the FON, and culminating in what was intended to be a concerted firing of the guns. In practice, their unreliability made this a rare occurrence.

The major source of guns and gunpowder for the northern Ndop plain was BALI NYONGA and BABA traders were especially active in this trade[104]. The trade in guns was

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101. BAMUNKA informants claimed that courageous individuals who were able to seize and hold captive an enemy in battle would be rewarded by the FON with the gift of a gun.

102. For instance, BALI KUMBAT are said to have first got guns through BAGHAM in exchange for slaves. P.M. Kaberry, BALI KUMBAT fieldnotes.

103. See Warnier, 1980.

104. "The BANSSO bought guns from BABA and BABESSI, the source of which was thought to be YABASSI". (D. Kbl. Vol. 17).

private and not transacted openly in the market place. It was described by BABUNGO informants as a chain-link trade with guns being sold by BALI NYONGA to BABANKI TUNGO, to BAMESSING, to BABUNGO, and so on to BABA, who, in turn passed them on to BABESSI. BABA informants claimed that BALI NYONGA was the original source of guns and gunpowder for the region, having been the first to gain knowledge of the trade and establish links that ultimately tied in with sources at the coast. However, at the end of the nineteenth century northern BAMILEKE chiefdoms were an equally important source. There was one smith in BAMUNKA[105] who specialised in repairing guns and seems to have developed a sufficient level of skill to imitate the "TOWER" type firing mechanism.

Gunpowder in kegs had a similar high value to guns. Once, it was broken up into smaller units, however, it was traded against virtually the entire range of market goods. It came in special carved wooden boxes with a rope tied around the outside and small sticks placed under the rope to indicate the number of "shots" contained. Around the turn of the century BABA traders were selling gunpowder locally at 100 cowries per "shot"[106], measured out in the cut off ends of small calabashes, which they had acquired in BALI NYONGA at approximately half this rate. One BABUNGO informant witnessed the exchange in EWINGFOEWING by a trader from BALI NYONGA of 20 "shots" of gunpowder for 4 "SOVOEKA" hoes and 4 brass rolls. Another observed a private exchange in his fathers' compound with a KOM trader of one gun for 10,000 cowries and 2 SOVOEKA hoes. A short while later as the supply of slaves began to diminish with

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[105]. One BABA informant claimed this smith was a migrant from BAMUMKUMBIT, and to have seen him making guns.

[106]. It is unclear how many firings were possible from one "shot" of powder. However, it is clearly the case that the high cost of gun powder must have severely curtailed the effective military use of guns.

the imposition of the "Pax Germanica" and the supply of guns from European sources increased the father of another BABUNGO informant, a specialist slave trader, exchanged 5 guns in EWINGNGAI for a slave from BAMUM with a BABESSI trader. The same trader shortly afterwards exchanged 3 kegs of gunpowder, acquired in BALI NYONGA for 10,000 cowries each, for another slave from BAMUM with a BAMBALANG trader.

Salt

Salt was more than simply a culinary condiment, although highly prized as such, it was greatly sought after and the knowledge that someone had a good quantity brought forth a stream of kin and neighbours coming to beg for it. Its possession was often kept secret. Salt shared some characteristics of gunpowder in that in its bulked up form for regional trade it was "KATOHWOE", and exchanged for a slave[107], but at the same time it was inherently divisible into very small quantities that were of low unit value and easily used for small market transactions.

Salt came from two directions, from the north Akwana salt came via KOM[108] and NSO intermediaries, from the south and west from an area known locally as "KIYAKOE". The latter was believed locally to be derived from boiling a certain kind of water and almost certainly refers to the salt springs of the Upper Cross River[109]. This salt was traded into the area by BALI NYONGA, BAGHAM[110] and northern BAMILEKE intermediaries. There were also local methods of producing vegetable salts and some limited mineral salt deposits.

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[107]. Chilver, 1961, mentions a similar use of salt in BUM where three bags might be exchanged for a slave.

[108]. While there is a general consensus among Ndop informants about Akwana sources of salt via KOM it should be noted that KOM informants actually claim that their first salt came from BAGHAM and BAMOENDJINDA and was a black salt wrapped in leaves. E.M.Chilver, KOM fieldnotes.

[109]. However, Warnier, 1983, notes that English salt was sometimes adulterated near the cost by the addition of ash water to wet the salt so that it could be formed into balls to be wrapped in palm leaves and sent to the Grassfields where it was confused with Mamfe salt.

[110]. Hirtler observed in BABESSI in 1903 that "Salt in stick form was bought in BAGHAM. It was not rock salt and therefore was probably extracted from salt water." (D. Kbl. Vol. 14 1902-3.)

Salt from the south was much preferred and more costly than salt from the north, it was considered very precious and used sparingly. It was brought to BABUNGO by BANGOLAN traders who had exchanged cowries for it in BAGHAM and northern BAMILEKE chiefdoms. BABA traders carried BABUNGO ironware to exchange for salt in BAMOENDJINDA, which they traded to NSO and OKU for cowries. BABA and BAMUNKA traders also went to northern BAMILEKE chiefdoms and BAGHAM to buy salt exchanging it in NSO for cloth which they returned to sell in northern BAMILEKE chiefdoms in order to acquire more salt. One BABA informant bought 300 leaf packs of salt for 3000 cowries in a northern BAMILEKE market, and sold each one for 50 cowries in BAMUNKA, and 100[111] cowries in NSO. This salt also came via BALI NYONGA where it was sold for brass rings to BABANKI TUNGO traders again for brass rings and then on to BAMESSING where it might be bought with cowries. In BALI NYONGA it was tied in bundles packed into large conical baskets, two of which might be exchanged for a slave. One basket sold for 2-3000 cowries.

In BABUNGO, salt from Akwana that came via KOM was not highly thought of, and said to be sandy and poor in taste. It was termed "salt from the bush" and came in the form of rocky chunks or gravel which had to be ground before use. It was less costly than salt from the south and was sold in small piles for 5 or 10 cowries according to the quantity. BABA and OKU informants claimed to have had this type of salt through NSO traders who got it from NKAMBE traders. Once the German trading stations had been established and there were sufficient supplies of European salt, sold in large bags for 50 pfennigs, all these sources of imported native salt quickly dried up.

BAMUNKA informants claimed that early on KOM exploited mineral sources of salt and sold it in segments of bamboo

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[111]. This 1000% mark up represents the enormous profits that might be achieved in combining conveyance between trading spheres and retail sales.

at 60 cowries apiece. Interestingly, BABUNGO and NSO[112] have similar traditions referring to exploitation of local mineral deposits of salt and Jeffreys[113] noted an important mineral salt deposit at BAMESSING. BAMUNKA also produced its own salt from vegetable sources in the immediate precolonial period which sold in EWINGNGHO, at 10 cowries for one small leaf packet. This product was not highly regarded and is described as having an awful taste. Exploitation of low quality mineral deposits and preparation of vegetable salts suggests that salt was considered essential, but from external sources it was costly and not always available.

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112. Sally Chilver was told that the NSO FON sent retainers down to caves in KWANSO where a salt-lick was obtained for his herd of dwarf cattle (personal communication).

113. 1943.

Other Trade Imports

Other trade items were individually of lower unit value but, together with ironware and palm oil, are likely to have comprised the bulk of goods on open display in markets. They may be divided into specialised craft products and foodstuffs and livestock whose intensive production was centred in certain areas.

A high degree of craft specialization was typical of many chiefdoms of the northern Ndop plain and some of its neighbours. Fine dyed and patterned woven raffia bags were the specialty of BAMESSING and BAMALI and traded widely. Ornate pots and smoking pipes were made by craftsmen in BABESSI. The BABANKI chiefdoms and also OKU were renowned for the excellence of their carvings. Finely woven caps were also a common item of craft manufacture both in the Ndop plain and the BAMILEKE chiefdoms to the south. In no instance, however, were any of these items exclusively made in one chiefdom. Each was able to produce its own raffia bags, pots, pipes. carvings and caps. In only a few centres was craft production developed to the point where the quality and quantity of production was of such an order that it permitted entry into higher levels of regional trading activity. These centres clustered at the heart of the Grassfields in and close by the northern Ndop plain where the greatest potential profits were achievable by those group able to produce high unit value commodities to use in engaging in trade between northern continental and southern coastal trading spheres.

In the realm of foodstuffs and livestock we see a similar pattern, with the exception of localised production of honey in the chiefdom of OKU. For instance, although dwarf goats and smooth-haired sheep were kept, in limited numbers, in all Ndop chiefdoms they were more intensively reared in the highlands of KOM and NSO, from where they were traded down into the Ndop plain and thence to points west and south. The lack of intensive livestock rearing in the northern Ndop plain area may be linked to patterns of settlement, agricultural practices and the availability of labour. For example, in BABUNGO the population was highly compacted within the boundaries of the war trench within which intensive horticulture was practised by female cultivators. Goats and sheep, which eat virtually anything green and growing, presented a serious problem in the growing season and had to be strictly controlled and securely tied at all times in a form of picket husbandry. This was time and labour consuming and not always successful and farmers had the right to kill any animal found destroying crops. Outside of the growing season these livestock were allowed free range.

Other items of cultivation traded into the Ndop plain included kola nuts and tobacco[114], obtained from NSO. All the trade items discussed so far were either produced or under the control of males. In BABUNGO, and elsewhere, guinea corn and maize were produced by women. BABUNGO produced regular surpluses of these foodstuffs which were sold in the market by the male kin of the producers. It is almost a cliché of BABUNGO accounts of precolonial trade that these surpluses went to satisfy the regular shortages of food experienced by the people to the north in KOM[115] and NSO.

A final, and, perhaps, unexpected import in the pre-colonial period was scrap iron, especially worn hoes. BABUNGO smiths greatly appreciated the ease with which

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114. According to Hawkesworth, 1923, this was an important commercial crop for NSO.

115. While KOM is always mentioned in this context it seems this is partly a backward reflection of later events masking the role of KIJEM cattle herding in the uplands and also KIJEM occupation of the BELO valley prior to their expulsion by KOM. Hence BABANKI informants claim to have had very large herds, c.500 black and white cows, formerly and that these were traded for food with BABUNGO since it was difficult to grow food on heights except for a little guinea corn, no maize grown, so they needed to buy extra. E.M. Chilver, BABANKI fieldnotes.

these could be worked. A few specialist traders went out to collect scrap to sell to BABUNGO smiths. Most scrap, however, was brought in by foreign traders carrying a few worn hoes in addition to their main items of trade such as palm oil. No scrap, at all, was ever returned from BAMUM which is an indication of the demand for ironware in that chiefdom. BAMUM smiths relied largely on scrap furnished by their clients. In all villages old items of ironware were kept and deposited at the side of altar hearths and family heads took these items to the smithies when ordering tools and weapons[116].

It seems paradoxical that scrap was returned over long distances to its point of origin. If the ironware was required in the first place why was the scrap not fashioned by local smiths into new tools? There were certainly no prohibitions against its re-use. It may be that those areas which returned scrap were in the process of becoming virtually entirely dependent on BABUNGO for their requirements for finished ironware. There is evidence for such a progressive dependency developing in the immediate neighbouring chiefdoms. In BABA, for instance, numerous "smithing" lineages exist but only one or two smiths were actually operating at the end of the nineteenth century.

Whatever the case BABUNGO was a major centre for smithing that was hungry for cheap and easily workable sources of scrap iron. For these reasons it attracted scrap to its markets where local smiths paid a price for it that must have been sufficiently high so as to encourage traders engaged in regional trade networks to continue to carry it back to its point of origin[117].

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116. Tardits, 1977.

117. Warnier, 1975, notes that, in periods of low demand for their products, smiths from the western Bamenda plateau took scrap to BAMESSING where they found a good market for it.

Exchange Rates, Profits and Labour Costs

It is unfortunate but, perhaps, inevitable that the data on exchange rates are quite inadequate for any quantative analysis of profits to be made. The accuracy of rates not precisely periodised and offered by informants 70-80 years[118] after the transactions occurred is highly questionable. Further factors include the lack of standardisation of traded commodities[119], the small and almost imperceptible variations in volumes of traded items between markets, the imprecision of large sums of cowries and the existence of "official" currency rates together with unofficial actual rates of goods exchanged against each other[120]. All these factors tend to conceal actual profits and dictate that any analysis of exchange rates can only be qualitative and not quantitative. Even if we had an accurate checklist of rates for specific dates the data would not necessarily be intrinsically useful since particular rates are likely to be determined by a complex and varying set of factors such as the commercial context in which the exchange occurs, ie. retail or bulk, relay or network, between producer and entrepreneur, or between entrepreneurs, and also on social factors extrinsic to the economic act of trade such as the relative status of the parties to the exchange.

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[118]. The strategy adopted in this research was to locate individual informants with some knowledge and/or experience of the period and then through repeated interviews attempt to "mine deep". It was not considered worthwhile to interview panels of informants where "consensus of opinion" rather than true recollection was considered the most likely outcome.

[119]. A BABUNGO smith, in a single transaction, might sell six cutlasses at a different rate for each one, according to size, sharpness and polish. Palm oil also varied considerably in quality and this affected the rate it fetched. The only items which came in set standards were cowries and brass rings, which is a major reason for their acceptability as currencies.

[120]. See Harris, 1972, for a discussion of this point.

Nevertheless, in broad terms rates given by informants fall into two groups, those current before the Hausa led cowry inflation after 1910 and rates that post-date and reflect this inflation. The pre-inflation rates represent those current for the earliest period for which we can reasonably claim to have good data on labour costs, technology and organisation of work, ie. c.1900-1910. These rates do indicate a general consistency of values between commodities expressed both in terms of each other and in terms of cowries and brass. So that in BABUNGO :-

c.8 litres palm oil = c.250 cowries
1 hoe = c.250 cowries or c.8 litres oil
1 Brass = c.250 cowries

If the oil came from BALI NYONGA this would represent a 100% mark up on market rates there and a similar profit would be sought by a BABUNGO smith trading in an external market. These profit rates, however, represent retail rates for individuals making "target" trade expeditions in order to raise bridewealth or entry fees in the first years of the colonial administration. Naturally, much lower rates, 30-50%, were achieved in bulk trade of regional commodities but much less precise data are available since informants surviving through to the 1970s are unlikely to have been personally committed to trade at this level in the immediate precolonial period. When transportation and prestatory costs are taken into account these profit rates must be revised downwards to c.50% for retail sales and c.20% or less for bulk sales. However, the profit level of bulk trade was less significant than the potential it offered for entry to trade at a higher level where exchange values were exchanged against each other and conveyances made between different geographical spheres of commercial activity.

If the analysis is extended to a comparison of the labour costs of the production of the main commodities being circulated in these regional trade networks the limitations of the available data become even more apparent. We have seen in an earlier section that it took c.6.5 man/labour days to produce one hoe. Data available for META[121] production indicates that c.6 man/labour days, or 48 man hours are needed to produce c.9 litres of palm oil which is only slightly more than the volume of oil that BABUNGO informants claimed was exchanged for one hoe in BABUNGO. Accordingly, we seem to have a remarkable equivalence of labour costs and exchange values. It is remarkable because in no way is this a "free market" in which labour and capital are free to circulate. The nature of specialisation is such that neither commodity competes with the other at its point of production, ie. imported oil does not compete with locally produced BABUNGO oil. There is an exchange of goods only and not labour and capital between what are essentially complementary economic zones engaged in external trade.

So how do we account for the apparent equivalence of exchange values expressed as labour costs since there is no reason why the one should be reducible to the other? Firstly, it has to do with the imposition of transportation costs on the palm oil trader since if 50 hours of palm oil labour is exchanged for 50 hours of iron labour at BABUNGO then the transportation costs of the oil are being borne by the palm oil trader. Secondly, if these costs represent c.15% of the value of the goods, ie. similar to profit levels of bulk trade, then the limitations on the precision of the data suggest we are firmly stuck within implicit margins of error and any quantitative analysis of exchange rates and profitability in terms of labour costs is rendered largely ineffectual.

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[121]. Rowlands, 1979. No data are available for labour costs of MBAM valley oil production although there are suggestions that these may be similar to the more efficient BAFUT techniques.

Conclusions

The distribution network for BABUNGO iron production was a highly organised undertaking based on the use of cowry currency, periodic markets, credits and commissions, and organised trading parties operating under trade leaders. The vital and valued commodity produced by the BABUNGO iron industry was tied into external sources of trade goods by specialist entrepreneurs who operated to cross-cut different currency and trading spheres making highly profitable conversions and conveyances between them and bringing great material prosperity to the area. At the heart of this system of exchanges BABUNGO iron products were exchanged for slaves from neighbouring BAMUM. These slaves increased the reproductive base, conferred prestige and potential "NKAP" wealth, but most significantly were fed back into iron production enabling higher levels of output to be achieved and further exchanges of slaves for ironware in a continuous cycle of production, exchange and reinvestment that promoted the momentum of increasing production in the last decades of the 19th century.

In the absence of data on other centres of West African iron production little can be said concerning the position of the BABUNGO industry in the global economy since while we may make reasonably educated guesses about absolute levels of BABUNGO output we do not yet know what proportion of total West African output or demand satisfaction this might represent. In 1827[122] the estimated average annual BABUNGO output would have represented c.10% of total U.K. exports of iron to West Africa. By 1850 various factors including rising industrial production and a fall in real costs had led to a sevenfold increase in U.K. exports of iron to West Africa. Regardless of preferences for locally produced iron a sevenfold increase of imports at the coast is likely to have undermined the

122. Newbury, 1972.

value of BABUNGO production especially since its real costs would not have fallen in line with those of U.K. producers. However, the pressures of the U.K. naval patrols on the coastal slave trade may have had the effect of redirecting slaves to internal markets facilitating a reduction of labour costs through incorporation of slaves into the labour force. At the end of the 19th century independent oral testimonies confirm a rate of c.132lbs[123] of iron hoes for a slave in both OKU and BABUNGO. The c.195 man labour days in BABUNGO labour costs that this represents does not seem an excessive cost to bear when the potential labour input of the slave is taken into account.

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[123]. Two centuries earlier 300lbs of iron bars represented the coastal price of a slave, Curtin in Ajayi and Crowder (1971).

WEALTH, POWER AND PRESTIGE

Introduction

The ultimate constraint on absolute levels of output attained by any one centre of iron production is the perpetuation of the integrity of the community in which the industry is set. That such integrity depends on the political system both for the maintenance of social order and for the organisation of defence against external attack is true for all autonomous polities. Where high levels of output of a commodity are linked to the accumulation of great material wealth the institutional provision for conversion of wealth into power and prestige inherent in the political system may, itself, be a major factor in the maintenance of the integrity of the community.

In order to determine to what extent wealth derived from production might be converted into political title and social rank it will be necessary to briefly outline the political organisation in terms of the distribution of titles, authority and prestige. The oral data upon which this reconstruction is based was obtained in individual interviews with sources from all sides of the "political divide". It was apparent from earlier work[1] done in BABUNGO that a palace based conciliar enquiry would not have yielded useful data. Instead, individuals with particular vantage points were sought out and questioned intensively concerning their personal areas of knowledge so that an overall framework of the political system could be constructed that took into account the biases of individual sources expressed as ideological statements describing the "traditional" political organisation.

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[1]. Kaberry's 1947, 1960 and 1963 fieldnotes recording interviews with the BABUNGO FON and elders show clearly that the "consensus" offered by the assembly was more or less being constructed on the spot in response to questions whose answers had not previously been resolved.

The titular head of the chiefdom was the FON but political authority lay largely with the senior ranks of the regulatory association, TIFWAN. However, in determining precisely where effective power lay two problems immediately arise. Firstly, it is never said something or someone enters or leaves the TIFWAN compound, instead the formula that "X is taken to the palace" is used regardless of whether "X" actually enters the palace or the TIFWAN compound[2]. Secondly, descriptions of politics are invariably couched in terms of the FON making laws, appointing individuals to offices, conferring title, or issuing decrees. Closer examination reveals that the FON has no such autocratic powers and that the effective locus of decision making lay in the hands of the senior title-set of TIFWAN, the VOETUGHAU. However, these formulae do point to the ambiguity of relations between FON and TIFWAN.

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[2]. The palace and TIFWAN compound are separate and linked by a passage used only by the FON.

FON

The dominant themes emerging from informants descriptions of the chieftaincy are those of separation and dependency. The notion that the FON is sacred[3], unique and set apart embodies the mystic qualities of the chieftaincy that were reflected in a mode of symbolic behaviour expressed as an elaborate system of etiquette and language which surrounded the FON. Juxtaposed to this is a strong element of dependency in relations between the FON and the elders of TIFWAN, and with the people, guardian spirits and royal and noble ancestors of the chiefdom.

The installation rites of the FON represent a symbolic expression of power derived from mystical sources and the way limitations to that power take the form of ritual dependency. The new FON is transformed from the ordinary to the sacred but his sacredness and associated powers are dependent not only on the spirits and ancestors but also on

[3]. He may be described as a god, in life what others are after death, ie. a living ancestral spirit whose breath is fruitful, a blessing, Schmidt (1955).

BA[4], the head of TIFWAN, and the association of grave priests, the VOETUTIFUM, who intercede with them on his behalf[5].

These mystical powers fall into two categories. Firstly, protection of the chiefdom from misfortune and secondly, the promotion of the fecundity and prosperity of the chiefdom. The chieftaincy symbolises the integrity and autonomy of the chiefdom and, hence, it was necessary not only to defend against physical attack but also to protect the person of the FON, and by implication the chiefdom, from the witchcraft of enemies. In the course of the installation rites it was thought that the new FON acquired the necessary mystical powers from the guardian spirits and

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4. Titleholders with similar roles to the BABUNGO BA occur in other Ndop plain chiefdoms, such as BAMUNKA, BAMALI, BAMBALANG and BAMESSING. The closest to the BABUNGO model is represented by the BAA of BAMUNKA. Unlike the BABUNGO BA the BAMUNKA BAA is a title created in the reign of the seventh FON of the chiefdom, as head of a seven cup title-set. He plays a similar role in the installation of a new FON, placing him on the stool and presenting him to the people of the chiefdom. He is ranked, as in BABUNGO, second to the FON, deputising for him in his absence. Like a FON he might not be destooled only ostracised. As in BABUNGO the FON and BAA did not exchange daughters in marriage, and adultery with his wives was punishable by death. He, too, was head of the regulatory association, "NGWASE", and might be called "BAA-NGWASE", just as "BA-TIFWAN" in BABUNGO. He played a similar role in the association of grave priests. He was not a ward-head. Very interestingly the BAMUNKA BAA did not send his sons to the regulatory association, "NGWASE", and, himself, appears not to have been a member prior to his accession. This parallels the situation in BABUNGO prior to the disputed succession of SANGGE.

5. It is unclear how long this has been the case. It is conceivable that this situation dates only from the break in the line of patrilineal succession between NYWIFON and SANGGE. Recently (1977) the remains of the last two FONS, SAKE and SANGGE, were exhumed from their tombs at the former palace site at NTONDO and reburied at the present palace. No information is available but it is not beyond the bounds of reason that the present FON ZOFON might have intended by this exhumation and reburial to take over the reins of sacrificial duties, at least, as far as the last two FONS , his paternal ancestors, are concerned.

royal and noble ancestors of the chiefdom. He also inherited certain medicines and charms from his father. The FON was also strongly associated with the beneficence of the divine agencies of the chiefdom since ultimately it was the chieftaincy that embodied and expressed the unity of the chiefdom to these divine agencies and in so doing promoted the preservation of the integrity, protection and fertility of the chiefdom.

These mystical powers were not limitless and nor were they entirely unique to him. The process of transformation of a prince into a FON depends on divine forces over which the individuals involved have little control and to which the FON remains accountable. A FON that was plainly seen to have fallen out of their favour might well have all show of respect and services withdrawn from him.

His mystical powers were also limited by ritual dependency on BA, the association of grave priests and the senior title-sets of TIFWAN expressed in the rites of chiefly installation and in the annual dry season celebration of the royal and noble ancestors and guardian spirits of the chiefdom. Those on whom the FON depends most are thought to be most like him, sharing some of his mystical attributes. For instance, the senior elders of TIFWAN had the reputation of having powerful medicines and charms that gave them the ability to transform themselves into certain animals. This sharing of common mystical attributes and also the elements of ritual dependency of the FON represent a form of symbolic expression of the wider political and structural dependency of the FON in his relations with BA, the elders of TIFWAN, and the population at large.

In more practical terms the FON was dependant on the goodwill and generosity of the people for material provisions and maintenance of the palace and also for public ceremonials. These goods and services were offered in respect of the sacred and unique characteristics of the chieftaincy[6] and were administered by the senior ranks of TIFWAN. The FON also gained by participating in the political affairs and administration of the chiefdom as a senior member of TIFWAN. Only those rights due the FON as head of the royal clan were relatively free from TIFWAN control.

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[6]. Annually the women brought gifts of cereals to the palace not as tribute but as an acknowledgement of his role in promoting the fertility of the chiefdom.

NINTAI

The sons of the FON had their own exclusive association, NINTAI, based in the palace. This was a unitary association recruited from surviving male agnates of the FON who remained of royal, or VANG-NTO[7], status for three generations after which they were permitted to join TIFWAN. Adult sons of the FON were dispersed from the palace and settled throughout the chiefdom, barred from entry to TIFWAN they had limited opportunity to participate in the political arena. "Royal" foreign migrants retained this status and were recruited to NINTAI and not TIFWAN. A large percentage of lineage heads claimed this origin[8] and so were originally incorporated through the FON and NINTAI.

The head of NINTAI, called TUNGIININTAI[9], was an appointee of the FON, and received gifts of wine and food whenever NINTAI met to perform its dances at mortuary celebrations for its members and those of other major personages. While NINTAI did not operate as an political unit vis à vis TIFWAN or other commoner elements, its public performances expressed the nature of the social and political relations between sons of the FON and commoners. As sons and potential successors of the FON, who "owns the chiefdom", they enjoy a social status superior to that of the commoners amongst whom they are obliged to reside. The performing NINTAI member, wearing his net mask and brightly coloured feathered headdress is an impressive sight from which women and children flee and before which adult male commoners affect a pose of passive subservience. This expresses the superior social rank of male agnates of the FON over members of commoner lineages. This is reversed in the political realm where effective power is held by titled

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[7]. Lit. "child of the palace".

[8]. A census taken of origins and occupations of compound heads for the immediate precolonial period indicated 25% claiming foreign origins.

[9]. Lit. "father of the house of NINTAI".

commoner lineage heads through their participation in TIFWAN.

The guardianship of the instruments and sacra of the NINTAI association is in the hands of commoner palace retainers selected by the FON. Control of the sacra of an association implies control of the association. Hence, NINTAI is controlled by commoners deriving their authority, not from TIFWAN, but from the FON, whom they serve as palace retainers. Effectively, this means that NINTAI is constituted so that it may not operate as a political unit.

This separation of royals from political authority is not directly linked to a single overarching dualistic ideological opposition between pure and impure[10]. There are, instead, a series of pervading interlocking binary oppositions between royal and commoner, smelter and smith, palace and TIFWAN, etc., but there is no simple ideological dichotomy that orders and separates the different elements of the community according to conceptions of purity and impurity[11]. Sons of the FON are feared for their superior powers of sorcery not morally sanctioned as are such powers of the FON. Those members of the royal clan excluded from political powers actually represent a quite narrow band of three generations of close male kin to the FON who represent the greatest threat both to him and the senior hierarchy of titled commoners. For these reasons adult princes are excluded form the palace, dispersed throughout the chiefdom and excluded from associations endowed with political powers.

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[10]. See Warnier (1983) who does take this view.

[11]. For instance, TIFWAN, itself, encompasses aspects of both moral order and social control and there is a clear opposition between the VOETUGHAU who make decisions and the maskers who implement them. In fact, social control as pollution only enters the picture when the structures for the resolution and containment of conflict have failed.

The FON in TIFWAN

Junior recruits to TIFWAN were instructed that there is no FON in the TIFWAN compound and that they must address him there as "TIFWANWEH", ie. "the child of TIFWAN". Throughout his reign the FON remains dependent on TIFWAN for the maintenance of order and the provision of goods and services. Within TIFWAN the FON ranks only as a privileged and senior member and not even as primus inter pares. When he enters TIFWAN it is not as FON but as a senior, albeit privileged, member under its head, BA. Outside of TIFWAN, BA ranks second only to the FON, and is considered as his assistant and deputises for him when he is indisposed.

Elderly informants claim that prior to colonial rule the FON was subordinate to the senior title-set of TIFWAN which had the power to summons and punish him for infringements of custom. It is said that no decision reached by these seniors could be vetoed or overtly obstructed by the FON. However, the FON did rank as an equal to individual members of the senior set and had his own stool in their house in the TIFWAN compound. It is not at all difficult to see how the FON should have acquired more absolute powers in the colonial period. Successive administrations were quite unable to come to terms with a governmental, legislative and judicial body that was constituted within a closed and secret[12] association. As late as 1925 administrators bemoaned the fact that "chiefs are reluctant to go against council and their big men" and that "chiefs could be efficient, if their authority was backed by native court, but at present are overruled by elders"[13]. The FON almost certainly

[12] Drummond-Hay 1925, Assessment Report para. 60. "try as he might the writer was never allowed to see even the outside of the NGUMBA house". It also appears that the local names for the regulatory association were concealed.

[13] This statement occurs in the context of a description of the "NGUMBA", regulatory associations, with reference to the chiefdoms of BABA, BAMESSI, BAMUNKA,

(continued...)

enhanced his internal power base by virtue of his dealings, as sole representative of the chiefdom, with colonial administrations.

Nevertheless, the political system may have offered scope for a FON to acquire more or less secular power in the precolonial period. A recurrent theme of BABUNGO oral history concerns conflict between each successive FON and BA[14] since the disputed succession of FON SANGGE c.1875. This is precisely the outcome to be expected when a politically ambitious FON begins to use his potential influence to dominate TIFWAN and runs up against BA, in whom is vested the constitutional autonomy and secular authority of TIFWAN. Tendencies toward absolutism may be inherent in the structure of authority and power. The FON is, himself, a clan head like other clan heads in competition for resources. He selected his own personal retainers from the subset of TIFWAN entrants given special instruction in palace etiquette and so built up a retinue of trusted advisors who owed their positions of favour directly to him. Senior retainers participated in the major weekly decision making assembly of TIFWAN and, also, some were members of the "ZU-TIFWAN", ie. "the wife of TIFWAN", a very secret and senior "night" sub-association within TIFWAN. All were given the honorific "VOESHUU", used to distinguish men of note from ordinary untitled commoners. The balance of power lay in an uneasy diarchy between the hierarchy of TIFWAN counterpoised by the FON and his trusted retainers.

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[13](...continued) BAMESSING, BAMUMKUMBIT, and BANGOLAN. In para. 69 it is stated that the " chief of BABUNGO is very old; takes no active part in clan; people left to care of elders who, as in most of the clans, do all they can to obstruct the efforts of the administration". Drummond-Hay, 1925, paras. 64 and 69.

[14]. There are close parallels between this conflict and that between the FON of NSO and FAI NZENDZEF, Kaberry, 1959.

TIFWAN ranks above all other associations in the chiefdom and its decisions were promulgated through subordinate associations. TIFWAN also controlled succession[15] to all important titles and offices, the FON, himself, being installed by TIFWAN with the assistance of palace retainers. It was believed that a bad FON could never be physically deposed but that TIFWAN might "help" him to die quickly. The checks and balances in the system were designed to protect and preserve the chieftaincy not the man and his political ambitions, which were dispensable.

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[15]. This is a measure of the concentration of powers in TIFWAN. It is significant that in BABUNGO it was the strongest association to which an individual <u>belonged</u> that effectively enstooled him rather than, as in MANKON (Warnier, 1983), the strongest association <u>of</u> the lineage. This suggest that BABUNGO social and political organisation is closer to the BAMILEKE model (Brain, 1972) where the functional groups are compounds, associations and clubs.

TIFWAN

Recruitment and Training Sets

The formal system for the induction and training of young male commoners, associated with TIFWAN membership, disintegrated rapidly following the imposition of German colonial rule. This account is based on the recollections of elderly informants who entered TIFWAN around the turn of the century.

All males, other than agnates[16] of the FON, were entitled to enter TIFWAN upon payment of a small fee. New sets of recruits were inducted at intervals of approximately two and a half years and remained resident in the TIFWAN compound for up to five years undergoing instruction and serving both FON and TIFWAN. At any one time there would be a junior set and a senior set charged with overseeing the juniors. After a group finished TIFWAN residence its members retained a sense of common identity as an informal age set[17].

Trainees were divided into two groups according to the status of the parents. One group comprised sons of untitled commoners. The second were recruited from sons of former palace retainers, sons of daughters of the FON, sons of senior TIFWAN elders and male twins. The sons of untitled commoners primarily served TIFWAN and were instructed accordingly. The second group served as junior palace retainers and so were instructed on dealings with the FON and the organization of the palace and a few were later selected to serve the FON as personal retainers.

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[16]. Male slaves were also barred entry to TIFWAN but their sons were considered freeborn and might join the association.

[17]. Age mates (sing. EHDA') often formed work groups especially for tasks related to house building and iron smelting. In BAMALI an emerging set was given a collective name as a MANJONG age set.

The accounts of informants indicate harsh conditions, severe discipline and hard work. An incoming set spent the initial period living, with heads shaven, in flimsy huts constructed from banana leaves. They were permitted to build small fires but not to sweep away the ashes so that they soon became covered in grime[18]. They had to remain prostrate and silent in the presence of their seniors, who constantly mocked and ridiculed them. If they failed to show due respect they were severely beaten. After many months spent living under these degrading conditions they took the place of the senior set, passing out from TIFWAN, and their own place was taken by a new set of inducted juniors. Recruits contributed labour in iron production for the FON and TIFWAN, helped in clearing and planting of the FON's farms, and were sent to gather firewood both for the palace and the TIFWAN compound. They might also be lent out as carriers to traders.

These accounts suggest a general initiation which all commoner males underwent. Members of a departing senior set were given individual adult names by TIFWAN and then sent home where they were rubbed constantly with camwood to signify their new adult status. For commoner males TIFWAN membership was a prerequisite of full social adulthood. Genealogical evidence suggests that virtually all commoner males had TIFWAN names, and, hence, had been members of it. Not all necessarily had undergone the extended period of instruction and service, although a majority may have done so. Others would have acquired TIFWAN membership through heavy payments and foreshortened entry ceremonies.

This mode of incorporation of male commoners, from which agnates of the FON were excluded, served to maintain and re-enforce the strong distinctions between "royal" and "commoner". Furthermore, the subdivision of inducted training sets into the two groups according to parental

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[18]. They were called "VOEBUU", a pun on the words for wood ashes and slaves which neatly expressed their marginalisation at this stage of their induction.

status served to maintain status distinctions between the various categories of titled and untitled commoner lineages. However, this did not preclude an element of upward social mobility linked to merit and achievement. A youth in the subset of trainees recruited from sons of untitled commoners who showed outstanding qualities might be transferred to the group from whom the personal retainers of the FON were ultimately selected. If he became a personal retainer to the FON, then his sons automatically entered TIFWAN as part of the subset trained for junior palace service.

TIFWAN membership provided access to the over-arching power structures of the chiefdom. Some trainees were selected to become important officers of the association and others to serve and advise the FON. To this extent membership enabled the acquisition of prestige and political influence independent of the wealth and power of the descent group. The most successful might be rewarded with gifts of a wife, land on which to build a compound and, perhaps, also a gun and some cloth from the FON.

Title-Sets

VOETUGHAU

The highest ranking title-set within TIFWAN was the VOETUGHAU, or "fathers of spears", who shared the privilege of burial in an "IFUM", ie. a grave house, with the FON and the titular queen mother. Burial in an IFUM expressed the status of an ancestor linked to the chiefdom as a whole and not simply to a particular descent group. The VOETUGHAU were due respect second only to that due the FON but their privileges did not extend beyond the individual titleholder apart from entry of sons to the subset of TIFWAN trainees destined for palace service.

Membership of the VOETUGHAU title set was acquired by filial succession to headship of a patriline in which this title was vested. Informants stressed, however, that it was TIFWAN, and more precisely the VOETUGHAU, that ultimately controlled the succession and not the patrilineage of the deceased. It was the custom for the late titleholder to, indicate his personal choice as to his successor prior to his death but, in practice, these wishes were followed only when they coincided with those of the remaining VOETUGHAU. Succession to this title was an extremely expensive affair and full rights were only acquired through extended gifts and payments including a female child taken into the palace and later given out in marriage by the FON. Eventually, however, benefits would begin to accrue as the successor began to receive his own share of the gifts, fines, revenues, etc., coming into TIFWAN, and from which the VOETUGHAU, as a group, took the largest share.

The VOETUGHAU title-set was subdivided into two ranked sub-sets comprising a senior "five cup set", and a junior "seven cup set". The seniority of the former is validated by their descent from the siblings of the original FON. However, no common ancestor appears in the origin myth and genealogical ties with the FON are said to have been broken by the passage of time so that they are no longer considered part of the royal clan.

Both subsets of the VOETUGHAU occupied a single house[19] in the TIFWAN compound where meetings were held and revenues or gifts shared out. These were divided into three parts with the largest share to the FON, the second largest share to the VOETUGHAU, and the remaining portion to the common TIFWAN membership. The share given to the VOETUGHAU was further subdivided so that the five cup set received a proportionately larger share than the seven cup set, and BA received the largest individual share of all.

The VOETUGHAU exercised decision making powers in the context of the weekly meeting of TIFWAN which constituted a directive council[20] both for the internal affairs of the association[21] and the wider affairs of the chiefdom. This was attended by all VOETUGHAU, the FON, senior palace retainers, and the TIFWAN officers BOBE and TANTO[22]. The common membership of TIFWAN was excluded. Decisions reached in this assembly were promulgated through ordinary members and ward-heads to the chiefdom at large.

By virtue of its senior rank, and the inclusion of the FON, as TIFWANWEH, and also BA, the head of TIFWAN, this

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19. *Termed "NOESOE".*

20. However, the weekly assembly was not the sole locus of the political process. In fact, the entire TIFWAN compound with its various houses, sub-associations, and common membership was considered a legitimate forum for the confrontation of divergent interests and the cut and thrust of political debate. This explains, in part, the heavy veil of secrecy that shrouds its internal affairs and also why TIFWAN is "dissolved" for a period around the start of the planting season. At this time what would otherwise be legitimate airing of conflicts and grievances comes to represent a supernatural danger that may cause the earth to be polluted and the ancestors estranged with the result of poor crops and famine.

21. Hence the inclusion of the TANTO and BOBE officers.

22. See following section.

five cup title set, constituted the effective locus of power and decision making. Its primary concerns were the maintenance of order and settlement of disputes that could not be dealt with at ward level. It examined cases of witchcraft accusations, lèse-majesté, and other serious infringements of customary law and determined punishment. It passed the sentence of death for serious crimes and levied fines for less serious cases. Where a strong element of doubt or disagreement arose in circumstances that might otherwise lead to a sentence of death, the five cup set ordered the TIFWAN sub-association called GUU to administer the poison ordeal. The five cup set also formulated policy promoting the prosperity of the chiefdom. It dealt with issues ranging from the banning of sales of maize to foreigners in times of shortages to declarations limiting the period of mortuary celebrations.

The two sets of VOETUGHAU were concerned with external relations. After hostilities with a neighbour they decided upon terms of peace and ordered messages to be sent in the special TIFWAN bag. In this context it is important to note that the FON, aside from any involvement in TIFWAN, played a significant and independent role in external relations in his participation in a network of gift exchanges between FONs, through the agency of his personal palace retainers.

The VOETUGHAU, together with senior palace retainers, constituted the succession council for the chieftaincy. They were also in charge of instructing the FON in the organization and functions of TIFWAN during his one months seclusion in the TIFWAN compound since under normal circumstances the new FON, as a prince, only entered TIFWAN upon his succession.

Officers; BOBE and TANTO

Management of the day to day running of the TIFWAN compound was in the hands of "BOBE", while external affairs[23] of TIFWAN were administered by "TANTO". Both were selected from outgoing sets of TIFWAN recruits by the VOETUGHAU for service lasting from five and ten years. For the entire period both officers had to remain celibate, and it was forbidden for them to be seen by a non-member of TIFWAN so that they were obliged to wear net masks whenever they left the TIFWAN compound[24]. These officers were thought to acquire magical powers, such as the ability to transform themselves into animals, upon succession to office. The offices were not inherited. After completion of service these officers could expect to receive substantial gifts including, perhaps, a wife, a gun, some cloth and a plot of land from the FON.

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[23]. These duties included making market announcements of TIFWAN decrees and also mediating in transactions between the palace and commoners where TIFWAN had some material interest.

[24]. In the precolonial period it appears to have been the rule that the BOBE officer remained permanently resident in the TIFWAN compound until his period of service was terminated.

Masks; MENAI, MOBU and NKO

The masks of TIFWAN were its public aspect. The three most important were MENAI, MOBU AND NKO. The first two represented the power and authority of TIFWAN in respect of the maintenance of order and the resolution of conflict. The third was concerned with the ritual expression of the tensions and stresses inherent in the wider community and in TIFWAN and its relations with the smiths.

MENAI is said to be a very ancient element of authority. Its role was to express and implement the impersonal authority of TIFWAN and to exact tribute. In the distant past MENAI was authorised to seize recalcitrant offenders against customary law. The individual was given a length of bamboo wrapped in a rope to carry and a red feather placed in his hair to indicate that he was the property of the FON, and then sold into slavery. This account reflects practices current in nearby chiefdoms but in the immediate precolonial period such offenders in BABUNGO were executed by the feathered "terror" mask of TIFWAN called MOBU and not sold into slavery[25].

MOBU performed executions either by strangulation or by casting the individual into a deep and smooth sided pit[26]. MOBU was further associated with death in the mortuary celebrations of TIFWAN members in a ritual it performed to signify the burial of the member by TIFWAN. MOBU also played an important conciliatory role in major disputes that threatened the integrity of the chiefdom. For instance, when FON NYWIFON died c.1870 without male issue there ensued a serious succession dispute that split the chiefdom into two opposing hostile factions. The

[25]. The loss of the functions of MENAI to do with the slave trade are not related to any emerging ideological separation of the slave trade and iron production but are due to the enormous needs of the latter for labour.

[26]. These forms of execution suggest an element of blood avoidance or, in other words, the avoidance of the pollution inherent in the spilling of the blood of a member of the chiefdom.

dispute lasted two to three years and disrupted the chiefdom almost to the point of dissolution[27]. During this period MOBU was repeatedly sent out to attempt to unite the opposing forces but in vain. The power of MOBU derived from TIFWAN which was as strongly polarised as the rest of the chiefdom so its failure is not altogether surprising.

The two masks MENAI and MOBU provided the means for the public expression of the power of TIFWAN. They were the instruments for the use of legitimate physical force on behalf of the higher political structures of the chiefdom. MENAI, gowned and masked to conceal personal identity, used his fearful appearance and large club to enforce the law as laid down by the TIFWAN assembly, and to punish those failing to comply. When MENAI failed to achieve control through the use of limited force then MOBU stepped in. The feathered mask of MOBU is a "terror" mask because its actions are final, without the possibility of appeal or clemency, it kills. It represents the ultimate power of TIFWAN, that of life and death over those it rules, the ultimate sanction against those who flout its authority.

The role played by TIFWAN in the maintenance of order, and in the process of decision making and the formulation of policy, generated conflicts and tensions within the structure of the association. These stresses followed the lines of the greatest structural discontinuity between social and economic groups and categories of the chiefdom. Such discontinuities existed between royals and commoners, TIFWAN members and non-members, the FON and TIFWAN, titled and untitled commoners, and smiths and smelters. These were expressed symbolically in the orchestration of public and palace ritual and ceremony most especially in the ritual performances of the two NKO masks of TIFWAN described in an earlier section on the ritual integration of smith and smelter.

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[27]. Hence, in this paper it will be given that NYWIFON died c.1870 and SANGGE succeeded c.1875.

Sub-Associations

Membership of TIFWAN was a precondition of membership of sub-associations operating within its orbit. The senior elders of TIFWAN had a high degree of control over these sub-associations that derived largely from overlapping membership. The two most important of these sub-associations were GUU concerned chiefly with social regulation, and the VOETUTIFUM, the association of grave-priests, which administered the cult of the royal and noble ancestors and guardian spirits.

GUU[28], the poison ordeal lodge, was located within a fenced enclosure in a clump of preserved high forest immediately behind the TIFWAN compound. While physically set apart from TIFWAN the membership of GUU was composed entirely of members of the VOETUGHAU title-set and other seniors of TIFWAN on whose behalf it operated. Its main function was to determine guilt in cases where the senior five cup set of the VOETUGHAU were unable to reach agreement. The accused was taken to the GUU enclosure and obliged to swear innocence and drink the concoction. If innocent he or she would vomit up the poison, if guilty they became crazed and died. The ordeal was also administered in cases of witchcraft and lèse-majesté.

It appears, from informants' accounts, that the FON and VOETUGHAU sometimes plotted together to accuse an especially wealthy lineage head of some form of disrespect. He was forced to drink the poison and after his death all his property and wives were taken by the FON and the VOETUGHAU, and the compound scattered. It seems likely that wealthy lineage heads with no established political base were seen as a threat and were simply removed from the scene by means of this expedient.

The association of grave priests, the VOETUTIFUM, was led by BA, and staffed by the descendants of former

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[28]. The name refers to the sasswood tree from which the poison was derived.

retainers to early FONs. Its functions were threefold. It played a key role in the annual dry season celebration of the tombs of the royal and titled ancestors and the guardian spirits of the chiefdom. It was involved in the rites and ceremonies associated with the installation of a new FON. Finally it was this group that buried those personages of the chiefdom entitled to burial in an IFUM, grave house.

The annual dry season celebration at the tombs was instigated by command of the FON. The first sacrifices took place at the FOGHAI waterfall from which the founders of the chiefdom emerged. The grave priests then go on to visit each of the important waterfalls and sacred forests where the spirits of the chiefdom reside, and also old palace sites where former FONs are buried. They also visit the tombs of the VOETUGHAU and the queen mothers of former FONs. At each location offerings of raffia wine, dried mudfish, palm oil and camwood are made and prays said for the continuing fertility of the soil and the protection of the crops from misfortune. In return for the performance of these tasks the group of grave priests received large quantities of gifts of food and wine from both the FON, the VOETUGHAU and the queen mothers. It is important to note that neither the FON nor any other royals take any part in these ritual activities which are undertaken solely by BA and the VOETUTIFUM. The FON does, however, participate with the grave priests in certain divinatory acts performed at the graves of former FONs in the event of a major disaster threatening the chiefdom.

Membership of a second group of "priests" entitled the NFWEH was hereditary and vested in certain smithing lineages. The group performed three main functions.

Firstly, each year, after the first rains had fallen, TIFWAN would issue an order for the NFWEH to commence gathering the requisite medicines. These included the feathers of certain birds and the young shoots of the

"INKOE" plant[27], and they were first ritually blessed in the smithy of each member of the NFWEH. The young plants were then taken and planted in front of each compound and at all crossroads and paths leading out of the chiefdom. This was done to ensure the fertility of crops being sown and also the well being of the people by preventing the very strong winds that tend to occur at this time which represented the evil influence of the witchcraft of surrounding chiefdoms. As the members of the NFWEH proceed around the chiefdom from compound to compound performing their blessings they received gifts of food and cowries which were carried back to the TIFWAN compound and from which they received their own small share.

A second function of the NFWEH was to attend major celebrations in the palace and elsewhere to offer blessings for which they were rewarded with gifts of food and wine. They would sit in a corner of the dancing field under an arch of palm fronds, cooking various herbal concoctions in pots over a fire. By such means it was considered they prevented serious argument or fighting between those gathered and generally engendered feelings of goodwill.

Lastly the members of the NFWEH were concerned in general with the removal of pollution. For instance, in cases of serious disease, such as leprosy, it was the task of the NFWEH to cast the afflicted out of the chiefdom and to perform a ritual cleansing of the property and homes of the sick. The NFWEH also played a role in the ritual blessing and cleansing of any man who killed a leopard and so required ritual purification.

The regular annual ritual activities of both VOETUTIFUM and NFWEH represent complementary forms of mystical power. The VOETUTIFUM work for unity and continuity whose material expression is the fertility of the soil and the fecundity of the people. The smiths of NFWEH, on the other hand, employ powerful instruments of

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[27]. Dracaena Deistaliana.

sorcery to preserve all that the ancestors and guardian spirits provide from the mystical depredations of external forces. Together they provide for the ritual integration of the chiefdom and serve to protect it from both internal strife and also external forces of evil. These activities are firmly under the control of TIFWAN, which, accordingly, provides the structure for the ritual integration and mystical protection of the chiefdom in these two sub-associations.

TIFWAN and Occupational Associations

The most significant occupational association in the chiefdom was the club of nine senior smiths, the VOETUEYOE . It was, however, entirely separate and independent from TIFWAN. In brief[31], it regulated the internal affairs and organization of the smithing. It mediated between TIFWAN and the smiths as an occupational group and participated in major palace festivals. In contrast to the organisation of smithing the smelters had no restricted formal association controlling their affairs. However, smelters were dominant within TIFWAN whose senior ranks were almost exclusively occupied by foundry owners. The majority of smiths were simply ordinary untitled members and had little opportunity to participate in the higher decision making aspects of TIFWAN, while smelters tended to dominate them.

The close correspondence between senior TIFWAN status and foundry ownership meant that smelters did not require a separate association to represent their common interests since this would have been redundant in simply duplicating what they already could accomplish within TIFWAN. As far as the smiths were concerned this was clearly not the case. They did require a distinct and formally constituted body to both serve and protect their interests and also to mediate on their behalf with the higher authorities of the chiefdom.

The raffia wine tappers of the chiefdom also had their interests served by an association, termed KWOBAN, but this was firmly incorporated within TIFWAN, its sacra and meetings being held in the TIFWAN compound. Hereditary membership was limited to a very small group of lineage heads specialising in wine tapping. Its function was to decide the timing and implement the annual closure of the

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[31]: It is described in detail in the section on smithing.

raffia bush to all but wine tappers for a limited period to permit regeneration of the raffia stands. The members undertook the preparation and placing of the prohibition signs which were enforced by the TIFWAN masker, MENAI. At the same time an announcement would be made in the market place by TANTO declaring the closure. The membership shared with TIFWAN fines levied by MENAI in connection with this closure. It did not control wine tapping in any way and nor did it mediate between TIFWAN and wine tappers as an occupational group. Unlike most other associations KWOBAN had no recreational functions and only a very limited role to play in mortuary rites of its members.

The annual closure of the raffia tracts was intended to permit the regeneration of the palms. At other times these were continuously and intensively exploited , not only for wine but also for building materials, fibres for bag making and, also, charcoal for iron smelting. Fibre extraction involved the removal of the growing shoot from a young palm and reduced wine production. Clearly there was enormous potential for conflict inherent in this situation of exploitation of common resources by divergent and seemingly incompatible interests. It was the role of the KWOBAN association both to prevent conflict and also to protect the interests of the tappers. This was aimed particularly at bag weavers and for the duration of the closure raffia bags became scarce and expensive and the weavers were obliged to obtain the fibres and make their bags with a great deal of discretion or risk heavy fines. TIFWAN operates in this last instance, through KWOBAN, as a structure of authority commensurate with the span of the wider social aggregate that encompasses the different segments potentially in conflict for common material resources.

Conclusion

TIFWAN operates as a political association vis a vis the chiefdom as a whole since it most closely replicates the wider social aggregate. The basis of its authority rests in the exercise of decision making powers in the context of a closed male sodality and the implementation of its decisions by impersonal maskers. Its senior titleset is composed of individuals reputedly possessing strong medicines and powers of sorcery. They perform rites such as ritualised wine sharing that disavow the use of sorcery against each other and cement their solidarity so that they may act as a collectivity with decision making powers. The association has its own instruments of sorcery in its charms and sacra. The sacra of TIFWAN symbolise the autonomy of the polity through its exercise of independent decision making powers.

The senior title-sets of TIFWAN are not solely defined in relation to the internal structure of TIFWAN but have currency outside of it, albeit with an altered emphasis. Within TIFWAN the VOETUGHAU stand in a somewhat ambiguous relationship to the FON, and other royals are barred, so that effective political authority is in the hands of the senior hierarchy of titled commoners. Outside of TIFWAN the FON and his agnates are dominant in the social and prestige hierarchy. Ultimately, however, TIFWAN represents the unity of the interests of the chiefdom and the leadership and the directive council of TIFWAN supports both the chiefdom and the chieftaincy.

TIFWAN derives its power from a combination of structural and ideological principles and is not simply one of a number of associations that happens to have important regulatory functions but rather it constitutes the juridico-political institution for the chiefdom as a polity. It comprises a series of relatively closed sub-associations each with specific political functions that operate under the rubric of an ideology of unitary power and the inviolability of its authority. TIFWAN appears to take on a life of its own and becomes more than simply an institutional vehicle for the regulation of descent group conflict.

This centralisation of political powers[32] has some parallels in neighbouring chiefdoms[33]. The very high degree of concentration of powers in the TIFWAN of BABUNGO may well be linked to the nature of the economic base of the chiefdom and its specialisation in intensive iron production. TIFWAN has overt directive economic functions[34]. Inter alia it attempts to set the conditions of trade, fixes prices below which maize should not be sold, dictates that cutlass blades should be sold unpolished in order to increase overall production, etc.. In KWOBAN it protects the interests of one section of the chiefdom against the wider social aggregate. In so doing it is managing the material resource base of the chiefdom.

Intensive iron production necessarily creates enormous strains on local resources, most especially in terms of exploitation of the biomass for fuel. In other, less intensive, Grassfield clump furnace iron industries smelter and smith competed for the same fuel resource base. In BABUNGO, there occurs both a separation and an innovation in fuel usage. Smelters innovate and turn to using wood

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[32]. It is not considered that this centralisation is linked in any way to compaction of settlement brought about by CHAMBA raids in the 19th century. In the first instance the compaction of settlement in the northern Ndop plain almost certainly predates these raids. Secondly there is no obvious link between settlement compaction and political centralisation since immediately to the south of the Ndop plain are the closely related BAMILEKE chiefdoms characterised by dispersed settlement and a very high degree of political centralisation.

[33]. A letter dated 2/7/41 from the ward-heads and councillors of BAMALI to the D.O. in Bamenda stated "... (chief's) compound is just like country they bank and all the property and chief women belonging to KWEFOR who is our government who control whole country and chief just as our treasure clerk for the chief compound...".

[34]. See Warnier (1983).

chips and raffia stem charcoal while smiths continue to exploit traditional sources of fuel. What is significant is the parcelling up of the resource base and, hence, the avoidance of conflict inherent in the needs of a sedentary and intensive iron industry located in a grasslands environment for finite fuel resources.

TIFWAN provided the institutional context for management of the material resource base. Its degree of concentration of powers reflects the correspondingly high degree of occupational specialisation in the chiefdom and the need to deal with potentially highly conflictual divergent interests competing for common resources. This concentration of powers may be a precondition for moves toward autocracy by the FON in that political authority may more easily be captured by the chieftaincy where it is encapsulated within a narrowly defined institutional context.

Residential Associations

GA-LANSHWI

In the precolonial period the highest ranking association at ward level was always GA-LANSHWI owned by individual ward-heads. These associations[35] did not interact but had specific regulatory and administrative functions relating to the local ward. Each had an open, observed public aspect, LANSHWI,and a closed, hidden aspect, GA. It was claimed to be the oldest of all associations and its large drum is called "the mother of associations". The membership comprised senior lineage elders of the ward.

The masked GA played an important role in succession rites of untitled commoner lineage heads. It was said to "control" the succession and "appoint" the successor. In practice this meant that a masker was sent to make a public gesture of "seizing" the successor, who had already been selected by the elders of his lineage. This action publicly expressed this decision and backed it with the authority of the ward-head. This was important to the maintenance of order since violent disputes over succession are said to have been common in the precolonial period. GA also had the task of "closing" a mortuary celebration for an untitled commoner by throwing down a small drum on a path leading to the dwelling house of the deceased. This was a critical function in a context where mortuary celebrations not only often led to serious depletions of household foodstuffs but might also coincide with vital points in the farming cycle and so disrupt food production.

In its open aspect, LANSHWI, the ward-heads association, relayed TIFWAN declarations to the ward. In

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[35]. The composite nature of Ndop chiefdoms and the diverse origins of their populations are reflected in political alliances embodied in associations. The absence at ward level of encompassing genealogical ties necesitated residential associations such as Gɔ in BAMALI and NGɔA in BAMESSING which regulated conflict at this level.

this respect GA-LANSHWI represented an extension of TIFWAN and may be viewed as a form of minor TIFWAN in so far as its members were ranked similarly to the 5 and 7 cup title-sets of TIFWAN.

MOESOENJONG

In the immediate precolonial period each ward had between one and three MOESENJONG groups which provided units of public work but primarily served as warrior contingents. Each had its own drinking house and a leader elected by its members. These groups were not ranked but in war that of BA always took the lead[36]. Other groups provided guards for the palace during the extended interregnum period of installation of a new FON. They also supplied material provisions for a network of scouts stationed in huts hidden in forests on paths leading into the chiefdom. The military functions of these associations were seriously disrupted under the impact of German colonial rule.

SHWAA

These were residential circulating credit associations that served primarily to enable individuals to acquire the necessary sums of cowries for marriage payments, birth and mortuary celebrations, and also for trading expeditions.

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[36]. This is linked to the war rituals performed at the grave of MANGGE, the mother of the founders of the chiefdom, that is located in the compound of BA.

Private Associations

Private associations, owned by individuals, were primarily recreational but also performed mortuary rites for members. Membership was generally limited to close male kin and age mates of the founder who made an initial payment of entry fees and further payments for progressive initiation into the esotery of the association. Each association had its own dance, songs, musical instruments, magical charms, sacra and dress whose public display at mortuary and other occasions served to confer prestige on the membership. Most associations had a subscription element whereby members contributed cowries to a central pool taken in turn by each member.

All these associations sought to enhance their prestige and that of their members. Mortuary celebrations and palace festivals provided the public arena for the competitive display of dance and dress. The prestige of each association was largely dependent on the polish of its public performance and the splendour of its finery. This is one area where wealth might be converted into social prestige. However, competition between associations, and the associations themselves, were regulated by higher ranking political institutions. All new associations had to be "authorised" by TIFWAN in return for the payment of fees, and this authorisation might be refused. Sumptuary rights were jealously guarded and enforced by TIFWAN. All associations, whatever their status, were obliged to perform at major palace festivals. Failure to do so implied a refusal to show respect to TIFWAN and the FON and led to automatic suspension until heavy fines were paid.

DESCENT GROUPS; Occupations, Titles and Debris Volumes

Introduction

Data on occupations, titles, and descent group ties of heads of compounds existing at the turn of the century were obtained from ward-heads and elderly informants for each ward and sub-ward. Separate lists were obtained from different informants and cross-checked. Given limitations of memory the data will be incomplete and do not represent a census. However, elderly informants were keen to exclude "recent" compounds and, in fact, came up with many cases where compounds no longer existed.

Compounds varied widely in size, so that a single unit, such as the palatial compound of BA, contained more human resources than an entire sub-ward in the outlying areas of the chiefdom. However, the existence at the turn of the century of a large number of compounds linked to one descent group is highly suggestive of demographic success over immediately preceding generations. It is also the case that large, prosperous and heavily populated compounds are well remembered by informants as these features were, second only to political title, signs of prestige.

In broad outline these data give a useful general picture of the descent group branching and the associated distribution of occupations and political titles. This is laid out in appendices F to N. The descent group, "YIKU", is composed of one or more compounds, whose heads claim common patrilineal descent from a named paternal ancestor. Each compound comprised at minimum a man, his wife and children. Larger units might include the compound head, his wives, some taken as slaves, his own children, married sons and their wives and children, male slaves and their wives and children, married brothers with their families, and even fathers' brothers and their wives and children. Such a residential unit is exogamous as intermarriage within a descent group is only permitted after three generations.

The wealthiest compound heads were those able to keep married sons and brothers in the original residential unit which formed a corporate unit for production and consumption. All wealth from the productive activities of the members of the compound, women producing food and crops, males working in iron production, accrued to the compound head. He, in his turn, was obliged to provide the requisites of social adulthood for his sons, viz. a loin cloth, a wife, a gun, and a separate dwelling house within the compound, and also, to satisfy the needs of wives for such items as salt and palm oil.

The head of the compound had the choice of disposing of wealth either by reinvesting in compound expansion through the acquisition of more wives or slaves or by investment in prestige through the payment of entry and installation fees to the various associations of the chiefdom. However, this gave no access to political authority which was firmly locked in the hands of the senior and hereditary titleholders of TIFWAN. There were limitations, too, on how far self-aggrandisement through acquisition of prestige might go before incurring the unwelcome attentions of the established titleholders who would find real or imagined cause for accusations of lèse-majesté.

Occupations

Descent groups specialised in either smelting or smithing and while one lineage branch might rarely take up an occupation other than that of its parent descent group, specialisation within each branch remained consistent. In the case of the clan of the FON it should be noted that being of royal status was considered to inhibit participation in smithing because of the ritual separation of the iron sacra of TIFWAN from those of royal status.

Appendix K indicates the strong association between descent groups linked to the foundation myth and smelting[37] as a primary occupation. It also shows that smiths are largely associated with migrant status, both from viable and defunct chiefdoms. It does seem likely that migrant groups with smithing skills were attracted into the chiefdom in the nineteenth century as levels of iron production rose. Whatever the actual origins of the smiths they constituted a minority of compounds, mostly linked to one of two major smithing descent groups. These were, however, similar in size to the largest smelting descent groups of the chiefdom apart from the clans of the FON and BA.

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37. The exceptions to this involve a few lineage branches of the "royal" clan that appear to have taken up smithing sometime late in the eighteenth century or early at the start of the nineteenth.

Debris Volumes

In so far as a discrete volume of debris associated with a developed BABUNGO furnace can be linked to a compound head operating as a TUNAA at the end of the last century some inferences can be drawn regarding levels of production, lineage resources and wealth.

In terms of descent group categories the clear dominance of those associated with the foundation of the chiefdom is not unexpected. More interesting is the large proportion of debris output linked to relatively recent migrant groups. These may have been attracted by the skills and capital equipment associated with BABUNGO iron production and may have brought useful trade contacts and knowledge of regional markets.

In terms of individual descent groups and associated debris volumes the dominance of the clan of the FON is clear and closely matched by the clan of NSWII, ward-head of the most intensive smelting ward, FINTENG. However, there are in some cases wide divergences between descent group size and associated volumes of debris and some relatively unbranched descent groups are associated with seemingly enormous levels of production. For example, TUTOKWI, who ranks second to BA in the senior title-set of TIFWAN, is associated with the largest individual accumulation of smelting debris in the chiefdom and yet had only a single remembered compound unit at the end of the nineteenth century.

Title

The very senior hereditary title vested in the descent group of TUTOKWI together with the enormous volume of debris suggests a large descent group which has simply dwindled away. This lack of congruence between descent group size and retention of senior hereditary titles is evident from those other members of the five cup title-set with relatively unbranched descent groups. Equally, three of the largest descent groups in the chiefdom, including those of SONJONG, TIH, and SONGU, have no place in the list of hereditary titleholders.

Elective titles may be linked more closely to descent group size and dominance of the ward area. For instance, the distribution of the elective headships of the MOESOENJONG associations reflects very much the descent group composition of the residential area for which the title is held. For example, members of the clan of BA and TIEFE TIFON hold the TUNGGIINJONG titles for the three sub-wards of MBUKANG as do members of the clan of NSWII for the sub-wards of FINTENG.

At the end of the nineteenth century ward-headship titles appear to have become largely hereditary[38] but, at the same time, linked closely to descent group size. This is illustrated by the case of SONJONG and the ward-headship of the FINKWI ward. SONJONG is said to have arrived in BABUNGO early in the nineteenth century following a dynastic dispute in neighbouring BAMUNKA, bringing with him a large group of kin. He settled in FINKWI then under the ward-headship of TEH, a descent group head linked to a character in the foundation myth. The rise to ascendancy of the descent group of SONJONG and the subsequent

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[38]: In the colonial and post-colonial periods these titles have become appointive in so far as successive FONS have appointed new ward-heads to "recolonise" territory of the chiefdom lying outside the nineteenth century defensive perimeter. This is unlikely to have occurred in the latter part of the nineteenth century when the trend was toward compaction of the population within the war trench.

substitution of SONJONG for TEH as ward-head of FINKWI is couched in terms of the contribution of labour and materials to the palace by the larger following of SONJONG and his success in establishing good relations with his co-residents in the ward.

The NDIFWAN title, given to personal retainers to the FON, combined hereditary and appointative elements. It was hereditary in so far as the subset of TIFWAN trainees that specialised in serving the FON as junior servants were recruited from certain hereditary categories. The appointive element was the nomination of youths from this group to serve as NDIFWAN, ie. personal retainer to the FON.

Conversion

Conversion of wealth into political office and title occurred only under severe constraints in the immediate precolonial period. Such conversion as did occur took one of two courses, either substitution or gradation. More commonly it appears that those who accumulated great wealth risked its dispersal through accusations of lèse-majesté or witchcraft leading to the destruction of the compound and the assimilation of its occupants and material wealth by those of established title.

Substitution occurred where a descent group had dwindled to the point where it was about to cease to exist. This was case with the descent group of TISONJONG[37] in which was vested membership of the senior 5 cup title-set of the TIFWAN. Late in the nineteenth century the headship of the rump of this descent group, which retained the title, was transferred to GANG, the head of a migrant group from OKU that left following a succession dispute. GANG "became" TISONJONG, assumed the headship of the remnants of his descent group, occupied his compound and land and took over the ritual duties owed by the descent group head to its ancestors and guardian spirits. The remaining descent group of GANG remained separate, under the headship of a brother, albeit in a quasi-collateral relationship to the descent group of the "new" TISONJONG. These events occurred in the early years following the disputed succession of SANGGE and may represent attempts to consolidate his own power base within the senior ranks of TIFWAN.

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[37]. It is very telling that while a proportionally large volume of smelting debris is found in association with the older furnace type on the compound land of TISONJONG, only a couple of hundred cubic metres of debris are found linked to the developed clump furnace found there. The close proximity of the site to the BABA settlement that suffered severely in the face of a mounted FULANI raid c.1870, may point to the cause of the demise of this descent group.

Substitution might also occur where a descent group head died as a result of an accusation of some serious crime and the descent group was too weak to oppose moves[40] against it. One instance of this concerned TEHNJI, a 7 cup title-set member, who is said to have died after falsely swearing a mortal oath disavowing involvement in the seizure of FON NYWIFON by a raiding party from BALI KUMBAT. His place in the 7 cup title-set was taken by SONJONG but the descent group was left alone.

In the immediate precolonial era[41] gradation may have only occurred in association with substitution. It represented the piecemeal acquisition of rights associated with political title through continuing payments to existing members of the title-set over an extended period. It took the descent group of SONJONG some four to five decades to progress from the single title of compound head, through the establishment of a foundry and acquisition of TUNAA status, to ward-headship and finally membership of the 7 cup title-set in TIFWAN. Although SONJONG was given 7 cup rank in the latter part of the nineteenth century as a reward for his support of FON SANGGE's disputed succession, it was only in the 1930s that he acquired full rights associated with membership of this title-set. Rather fittingly this was the result of a personal dispute

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[40]. This point is illustrated by the case of BA NSIMBO who died following an alleged plot to poison SANGGE. In the face of the strength of the clan of BA the most that could be done was for SANGGE to refuse to perform the necessary rites and so leave the descent group headship unfilled for a number of years.

[41]. In the colonial and post-colonial periods the relativisation of the hierarchy of titles under an autocratic FON has become a common element of a process of accretion of new nobles to a set of pre-existing hereditary titl eholders in tandem with a general commoditisation of titles and rank. The significant question here is whether this is linked to new sources of external wealth or to the shifting locus of power between the FON and TIFWAN. Hopefully recent work undertaken in BABUNGO on "Power relations and the role of the modern elite in rural development" by Doris Blank will provide some answers.

with BA and the exchange of insults including the wounding remark from BA that SONJONG was a foolish goat fit only to be buried in the bush! FON SAKE, 1928-1956, quickly responded to the pleas of SONJONG and conferred on him the right of burial in an IFUM in return for the traditional payment of the BI-TIFWAN, a daughter taken into the palace to be given out later in marriage by the FON.

BABUNGO IN THE 19TH CENTURY

Internal Developments

In a number of instances small descent groups are associated with enormous volumes of smelting debris and very senior rank[42] in the political hierarchy. Conversely, a number of large descent groups, sometimes associated with large volumes of debris, have no title in the political system. These disjunctures between wealth, political title and descent group size point to historical transformations linked to the shift from the former to the present palace site in the second half of the 19th century and earlier changes in relative production levels.

The compound sites of old established senior titleholding descent groups presently encircle the former palace at NTONDO and are associated with large single accumulations of smelting debris. This may represent a hang over from the early part of the nineteenth century. However, by the end of the century these descent groups had dwindled considerably but remained on their ancestral lands and retained their hereditary titles while the centre of demographic expansion and increase in iron production had shifted a short distance to the east to centre on the new palace site in the central smelting ward of FINTENG.

Oral traditions account for this in terms of high levels of insecurity that compelled the population to huddle in the centre close to the palace for protection against raids by BALI KUMBAT and KOM. However, the transfer of the palace site to FINTENG, following the capture and return of FON NYWIFON, suggests that the demographic centre had already shifted to this area. This may be linked to the rising momentum of production in these central areas in the first half of the nineteenth century

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[42]. Eg. TUTOKWI with over 6000m^3 of recorded smelting debris.

that is signalled by the large increases in relative proportions of volumes of smelting debris associated with the developed BABUNGO furnace. This increase is linked to descent groups described as migrants, with no part in the foundation myth, that have no hereditary titles.

The three clans of SONJONG, SONGU and TIH[2] form a block that breaks up what would otherwise be a relatively close correlation between descent group size, occupation, links to the foundation myth and hereditary titles. These descent groups, together with that of NSWII[3], appear to constitute the core of expansion of production in the second half of the nineteenth century. However, the hereditary principle in the political sphere remained the rule[4]. Those who supported the intensely disputed succession of SANGGE c.1870[5], following the barren demise

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[2]. The lineage branches making up the clans of SONGU and TIH comprised the bulk of the smiths of the chiefdom at the end of the nineteenth century.

In the reign of the 8th FON of BABANKI it was claimed that "Another son TIH also left and settled near KOM and later left for FINGE village speaking KOM language." Chilver, BABANKI fieldnotes 1963, quoting a 1923 manuscript history prepared by the BABANKI FON when he was a Basel Mission catechist.

[3]. SONJONG and NSWII (who is included in the foundation myth) are ward-heads of the main areas of smelting activity that surrounds the central smithing sub-wards.

[4]. The ideological notion of the permanence of the title system makes it appear that it is hereditary given that titles, nominally at least, are vested in patrilines but it might more usefully be characterised as a crystallised structure, a fixed template of a limited set of political roles and relationships.

[5]. This date is derived from a consideration of the facts that FON SANGGE was firmly ensconced as FON when Zintgraff reached BABUNGO in 1889; that SANGGE is said to have had children, "born of the leopard skin", approaching adulthood when Zintgraff arrived; that SANGGE, prior to becoming FON, is said by BABUNGO informants to have resided at one point in time with YU of KOM in the chiefdom of BAMBUI prior to the accession of YU as FON of KOM c.1860.

(continued...)

of FON NYWIFON, against the entrenched hereditary titleholders were those without title or rank. The role of the smiths, especially the clans of SONGU and TIH[47], in enstooling SANGGE reflects the contradictions inherent in this situation. Their success is a reflection of their demographic growth and wealth accumulated in the immediately preceding years of the iron boom.

However, this success was short lived. A smithing informant described the situation in these terms:-

> "The senior ranks of the TIFWAN were weak and the smiths were physically strong and numerous. This was how they kept SANGGE on the throne. The smiths were rewarded for enstooling SANGGE[48]. However, after some time SANGGE became closer to those titleholders who had previously contested his succession. Together they turned against the smiths and began to kill some of them. Whenever a minor offence was committed, the FON and senior titleholders would come together and plot to kill the offender. After some time the FON had turned completely around and declared that the smiths gave him no respect whatsoever. Even if a smith

[46](...continued)
The date for the accession of FON YU is taken from Kaberry and Chilver, 1967. The residence of YU in BAMBUI prior to his accession is confirmed by Nkwi, 1976.

[47]. It is ironic that the departure of TIH from BABANKI is itself linked in local traditions (E.M. Chilver, BABANKI, fieldnotes) to a parallel dispute between collateral and princess sons for the BABANKI chieftaincy following the similarly barren demise of FON MBU-NGGONG.

[48]. This "reward" remains unclear but may have involved the turning of a blind eye by the FON to the subversion, by the smiths, of his customary monopoly over the distribution and sale of the double gong sacra of Grassfields regulatory associations. It may also refer to the appointment of smiths to retainer positions as close advisors to the FON. These two things are not necessarily unconnected.

was innocent they would plot together against him and declare him to be a "bold and arrogant person". They would argue that he must be given GUU[49] in order to keep the others in check. A number of wealthy smithing lineage heads were killed in this way and their property, wives and children seized by the FON and senior titleholders and the compound scattered."

It appears that the localised smithing lineages in FINKWI, dominated by the clans of TIH and SONGU, were in ascendancy in the years immediately preceding the death of FON NYWIFON. Although, the nature of the economic integration of smiths and smelters placed the smiths in a relatively disadvantaged position they must still have gained great wealth from their craft. Without titles vested in their patrilines the smiths were not able to convert this wealth into political authority. Genealogical evidence suggests that the alternative strategy of compound expansion through acquisition of slaves was more commonly adopted. This encouraged the development of a compact settled core to the chiefdom that stood in contrast to the scattered nature of the distribution of compounds outside this central area. FINKWI was, and, remains today, characterised by a warren of paths interconnecting a closely clustered myriad of compounds. Elsewhere compounds tend to be scattered, at some distance from each other, separated by farms. In FINKWI, compaction of settlement went hand in hand with a high degree of descent group homogeneity. The common occupational interests of these smithing lineages seems likely to have further promoted this unity[50].

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[49]. The sasswood poison ordeal.

[50]. One secret, and, perhaps, illicit association is said to have worked to prevent the establishment of smelting foundries in one sub-ward of FINKWI.

Wealth from iron production enabled the expansion of descent groups but gave no access to what clearly was a fixed set of titles and ranks associated with political authority. This created enormous strains that, together with the fortuitous phenomenon of the demise of a barren FON, led almost to the dissolution of the chiefdom as those without established authority used physical force to enstool their own candidate for the chieftaincy. The chiefdom was paralysed politically, ritually and economically for an extended period of time and almost fell into the clutches of its large neighbour to the north, KOM, when BA, in apparent desperation invited its regulatory association to come and enstool his own candidate. This had the seemingly unintended consequence of briefly uniting warring factions against a common external threat and created a window of calm in which the position of SANGGE was consolidated.

The immediate gain for the smiths were appointments to positions close to the FON that granted them access to political authority. In order to bolster his own position SANGGE surrounded himself with those who had most closely supported his succession. In 1889, Zintgraff noted that "the guild of smiths is of such a high status that the FON took his secret servants only from them, and the secret interpreter is also a smith". This was not, however, the established order of things and was not destined to become so.

There was only one political map, a fixed template, of a set of titles and ranks associated with political powers. This map, with very few exceptions, basically does not change. The smiths, lacking an established power base that would have legitimated their power, are eventually ousted[81]

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[81]. According to the minutes of the meeting of the SEF NA Exec. comm. 17.6.56 a complaint was laid against Nchinda Tih, head of the largest smithing descent group, by the new FON ZOFWAN. It was stated that when a chief dies all persons keeping property of deceased chief should (continued...)

from positions of privilege close to the FON and find themselves once more excluded from upper echelons of power. The major upstart smelting descent group heads, who might more easily have inveigled themselves into the established power base, find themselves subjected to false[11] accusations of witchcraft and lèse majesté[12], forced to undergo the sasswood ordeal and destroyed. SONJONG, alone, appears to maintain a foothold and it is only decades later that his position is consolidated through a long drawn out process of gradation.

While there was scope in the system for the creation of new lineage headships, the purchase of sumptuaries, privileges and prestige associations there was, apart from the drawn out processes of substitution and gradation, no

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[10](...continued) hand them over to the new chief. It was claimed that Nchinda Tih had refused to return property and money to the value of £415½, comprising £200 in cash, £20 worth of five pieces of KOM cloth, £6 for three pieces of cloth, £30 for six dane guns, £6 for ten bags of salt, £7½ for five tins of oil, £5 for a feathered cap, £56 for eight female pigs, £80 for 40 young pigs, £5 for one trap. Nchinda Tih denied he had kept anything for the late chief and stated it was a matter for the court. It is tempting to speculate that the young FON had ben misdirected by BA, or other senior elders of the chiefdom, seeking to further redress the balance against the BABUNGO smiths. It is noteworthy that this accusation mimics exactly that laid against BA following the succession of SAKE, the father of ZOFWAN.

[11]. One informant, the father of the present BA, indicated, in the presence of his son, that formerly if BA and the FON saw that an individual had much wealth they would plot together to make him undergo the sasswood ordeal so that they might take the wealth for themselves. BA did not refute this suggestion.

[12]. The smelting compounds of DISINGWIA, NCHIAFOE and a brother of SONJONG are said to have been scattered in this way. All three are mentioned independently in accounts of the succession dispute as prominent supporters of SANGGE. Ironically a further, albeit short lived, dispute arose between BA and SANGGE over the division of the spoils in the case involving DISINGWIA who was forced to drink the sasswood poison for placing his hand on the back of BA and, hence, showing him disrespect.

real potential for the creation of new nobles with high rank and political powers. Why should this have been so? Warnier[54] has argued that the political constitution of the nearby chiefdom of BAMBUI, similarly characterised by a fixed and apparently static title system, was largely influenced by the semi-peripheral position of this chiefdom in the regional hierarchy and its restricted access to sources of prestige goods. It seems plausible to argue that whether or not a society is open to the ascension of new nobles is not determined by some crude Malthusian principle relating to the availability of geographical space and physical resources but rather by the very nature of the system for the distribution of titles and powers. Demographic growth and accumulation of material wealth is not enough to promote fluidity in the title system. Further, to characterise the title system as weak because it is limited and fixed seems to miss the significant point of the crystallisation of these structures. BABUNGO had demographic growth and great material prosperity but the nature of the system for the distribution of titles and powers remained fixed.

In both chiefdoms, but more especially in BABUNGO, there was a high degree of concentration of powers in the regulatory association. In BABUNGO this was linked to high levels of wealth accumulation and the management requirements of an intensive and specialised craft industry. The concentration of powers was itself linked to a limited set of hereditary titles vested in a small number of patrilineages. This was the main block to the creation of new nobles with political powers not any peripheral or semi-peripheral position in the regional hierarchy.

It seems plausible to suggest that chiefdoms such as MANKON were in the process of becoming more centralised and had not yet reached the degree of crystallisation of political structures of those chiefdoms longer engaged in

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[54]. 1989.

trade with the external world. If MANKON was still in its youth, and BABUNGO with BAMBUI[55] in middle age, then BAMUM and BAFUT may be characterised as post-senescent. It seems that there may be two courses that a polity may take in order to overcome a crystallised structure for the distribution of titles and power. Either internal pressures lead to simple dissolution of the polity or the system is given scope to expand through absorption of its periphery as in the cases of BAMUM and BAFUT. BABUNGO appears to have come perilously close to the first option and it may be that a combination of a politically astute FON and potential external alliance with a nascent colonial administration saved the chiefdom from dissolution.

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55. A major difference in the political constitutions of the "NGEMBA" chiefdoms appears to lie in the greater extension or perpetuation of royal status. In the BABUNGO foundation myth the first FON and BA are brothers but informant's accounts of "traditional" political organisation stress that all ties of descent between those who founded the chiefdom have been washed away by the passage of time and that BA and others of high rank are no longer considered "royal". In fact, it seems clear from the foundation myth that a top tier of the story has been abstracted so that no common ancestor for the founders remains. In its place has been grafted an autochthonous origin myth involving a cave behind a waterfall echoing similar origin myths of autochthonous elements of the chiefdom.

Autocracy

By virtue of the circumstances surrounding his accession SANGGE almost certainly pushed the chieftaincy toward a higher degree of absolutism. In the case of SANGGE, at least, it is not the Germans who come seeking and making chiefs but rather the chief who goes to seek out his Germans. Zintgraff, attempting to return to BALI NYONGA, in disarray after mayhem in KOM[56], was spotted some distance away by BABUNGO scouts. SANGGE sent a smith, renowned for his bravery in slaying a leopard at close quarters[57], to halt Zintgraff while he, himself, hurried after them to entreat Zintgraff to come and rest in BABUNGO. All of this was done against the express wishes of the senior title-set of TIFWAN. It was not a diplomatic shot in the dark but a calculated move to gain an external ally both to bolster his internal position and also to deflect the threats from KOM, BALI KUMBAT and NSO[58]. SANGGE had his own independent sources of intelligence regarding this European[59], a potential source of a powerful external alliance, whose arrival came at an extremely opportune moment. The defeat of BAMUM, only a year or so earlier, had temporarily eased pressure on the

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[56]. Zintgraff, 1895.

[57]. MBOMBO's first-hand account of this event was given to the researcher by his son.

[58]. The defeat of NSANGU c.1885-8 enabled NSO to move into the eastern margins of the Ndop plain bringing pressure to bear on BABESSI and BABUNGO. The combination of the political alliance between SANGGE and the Germans and the role of the former as a conduit for intelligence on those groups to the north and north east of the Ndop plain may have led to a degree of manipulation of the colonial forces. Certainly, Pavel's punitive expedition against NSO, partly staged fron BABUNGO, eased pressure on the chiefdoms of the northern Ndop plain. See Emonts (1927) and Glauning (1906).

[59]. SANGGE showed Zintgraff evidence of his gift exchanges with the eldest son of the BALI NYONGA chief in the form of camwood he had been sent from BALI NYONGA, Zintgraff (1895).

Ndop plain but at the same time created a strategic power vacuum that was to draw in the unwelcome attentions of powerful neighbouring polities.

This move toward absolute power inevitably brought further conflict with the head of TIFWAN, BA, who embodied political authority for the chiefdom[60]. This conflict has gone on and on[61], often paralysing the ritual and

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[60]. The conflict between FAI NDZENDZEF and the FON of NSO may be understood in a similar light. Although Kaberry's point that the lack of clear separation between "state" office and descent group headship was at the heart of the dispute is clearly important it may explain more why such titleholders with strong clan support were able to hold on to power than the root cause of the dispute in the first instance. See Kaberry, (1959). It should be pointed out, however, that the precise political structures of the two chiefdoms did differ in so far as in NSO the senior directive council, the seven VIBAI, was apparently separate from the NGWERONG, regulatory association, while in BABUNGO the senior five cups set, the VOETUGHAU, were seen to operate as a directive council within the regulatory association, TIFWAN. Nonetheless, BA, as head of the five cups set and TIFWAN, and FAI NDZENDZEF, as head of the seven VIBAI, both stood second only to the FON in rank and shared many of the rights and attributes that set them apart from the population at large. Further, NDZENDZEF was formal head of the highly secret YEE NGWERONG and also convenor of the succession council (Sally Chilver, personal communication).

[61]. In the Ndop Quarterly Reports for the second quarter of 1927, ie. about one year before the death of SANGGE and c.50 years since his succession, it is recorded that "BABUNGO divided by dispute between FON and his BAA, an important official of the NGUMBA society who ranks second to the chief. Matter referred to council who effected a reconciliation".

In a subsequent report for the second quarter of 1929 it is noted that "BAA of BABUNGO returned after imprisonment ..relations with chief still very strained. Separist tendencies will be watched".

It is recorded in the NA files for the personal papers of FON SAKE that in October 1937 he petitioned the Ndop NC to summons BA for the return of £515, 6 bags of KOM cloth, one case of gun powder, and 14 boxes containing the dresses of the chief that had been owed to him for about 8 years and 8 months (ie. since his succession).

In a letter in the same files dated 24th August 1937 FON SAKE informs the DO that he did not take over until 7 days after the death of his father. By this time BA had

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ceremonial life of the chiefdom, right up to the present day. It is, perhaps, a mark of the solidity of the traditional structure of political authority and the checks and balances built into it that no FON has succeeded in getting rid of BA in nearly eleven decades of on-going intermittent dispute[62].

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[61](...continued)
entered the father's house and stolen all the things, all the native money his father saved during the German and English periods was carried away by him.

In the same letter SAKE stated that at the time of tax collection BA collected tax from his ward and refused to hand it over to him. The whole chiefdom gathered and were annoyed. Two men were sent to demand the money from BA but he ordered them to be beaten. Then BA took this money to Bamenda where he was tried and found guilty and imprisoned for 6 months. When released the DO told him to return the money and things he had taken from the palace but he never did so.

SAKE concluded this letter by imploring the DO to inform BA that if he did not stay neutral with the FON he would be brought to Bamenda again and sentenced severely.

[62]. This may also be linked to the notion that BA, like the FON, could not be physically destooled but only have all services withdrawn and left to die. The use by the Babungo FON of the colonial administration as an instrument for his own policies may represent one way of circumventing this notion of the inviolability of BA.

External Conditions

If the internal political map could not be changed why was an alternate strategy of expansion of hegemony not adopted since the system of titles and powers could always be expanded at the expense of weaker neighbours? What factors may have inhibited an expansion of BABUNGO hegemony, especially with regard to those groups that had sought refuge close by its borders? The answer to this may lie in one or all of three areas.

Firstly, the nature of its relations with its more powerful neighbours may have inhibited incorporation of the smaller chiefdoms and groups that clustered around it[22]. Many of these groups, especially BABA, BANGOLAN and BAMUNKA, had important diplomatic relations with KOM and NSO, that must have offered them some degree of protection. The history of BABA and BANGOLAN illustrates a remarkable tenacity in surviving as independent polities in the face of violent dispersal, prolonged[23] peregrinations and harassment. Both chiefdoms had significant links with NSO. Driven across the NUN by the forces of BAMUM the BABA chief sends his "bag of treasures"[24] to KUMBO, ie. he entrusts NSO with the symbols of his authority. Similarly, BANGOLAN, following its dispersal, gathers at KUMBO where a new FON is installed, ie. his authority is legitimated by the more powerful polity. Both courses of action are taken in direct relation to the threat of incorporation by

22. There are other instances where conglomerations of separate polities did not coalesce to form single units under conditions of proximity to large and more powerful neighbours. The MANKON "confederacy" is a case in point.

23. Vollbehr (1912) witnessed the return of a BANGOLAN contingent some 2000 strong from its refuge site adjacent to BABUNGO to a site close by its former settlement in 1911. The original dispersal may have occurred c.1826 (Koelle, 1854, and Tessmann, 1932).

24. Most probably this was the iron sacra of his regulatory association.

BAMUM, but have the indirect effect of placing enormous blocks in the path of any effort on the part of BABUNGO to incorporate these displaced chiefdoms.

However, none of this precluded the incorporation of discrete elements from these chiefdoms. This did occur and was not only significant in demographic terms[66] but also in the skills and knowledge[67] that such incorporation entailed. The FON was the main instrument of this through the pivotal and redistributive role that enabled him to offer wives, food, hoes, and land[68] on which to build a compound and farm. The majority assimilated in this manner in the latter part of the nineteenth century were, accordingly, given a quasi "royal" status which further enhanced the position of the FON and his clan[69].

A second factor inhibiting the expansion of hegemony over its neighbours in refuge was the vital role that these played in taking over the transportation costs of moving ironware out of the plain to important regional markets in

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[66]. BABA informants bemoaned the loss of some 80-100 potential tax paying individuals lost in this manner through the incorporation of the descent group of NDIMUFWAN following the move of the main part of the chiefdom from the first (of two) refuge sites located immediately to the south of BABUNGO.

[67]. "TANTO" MUU of BANGOLAN remained behind in BABUNGO following the return of the former to their original settlement site. He was a wealthy specialist trader in slaves and prestige goods operating in FUMBAN, BAGHAM and BALI NYONGA. Interestingly, he exploited the situation of a rapidly depreciating cowry currency, in the first decade of the present century, to pay for the labour entailed in the construction of his own smelting foundry.

[68]. In the BABUNGO origin myth, which echoes BAMILEKE traditions, the founders of the chiefdom discover and buy the land from the autochthones with small red money beads. Although the FON does grant land through the agency of ward-heads he retains nominal rights as descendant of the original purchaser.

[69]. Approximately one third of the 300 recorded compound heads were linked to descent groups associated with migration into BABUNGO from chiefdoms that were still in existence at the end of the nineteenth century.

KUMBO, FUMBAN, BAGHAM and the western Bamenda plateau. Any attempt to incorporate these groups by force would have disrupted the distribution network for the products of the iron industry and led to economic ruination in the short term. Further, the non-incorporation of specialist trading groups is likely to have been a precondition of their entrepreneurial role since to operate in this way it is necessary to be an outsider not emeshed in the prestatory relations of the producing community[70].

Thirdly, there does appear to be, in the wider region, some degree of disjuncture between the processes leading to the formation of larger polities and the persistence of the large scale mode of iron production. This is clearly the case for the conquest state of BAMUM, where iron working groups such as the NDZEREM, NZEERN, PA'TI and PAPIAKUM abandon production after defeat by BAMUM. It is less obviously so for KOM and NSO where more profitable economic opportunities afforded by regional and long distance trade networks may have played a significant part in the cessation of large scale modes of production. Even in these cases, however, it is conceivable that the expansion of authority in the larger polities opened up conditions for trade, within that polity, so that this became a more attractive economic proposition than persisting with labour intensive iron production.

Another factor in this may be the apparent disassociation of smiths from violence. Zintgraff (1895) noted the widespread reputation that BABUNGO enjoyed for peaceable dealings, by this he meant that it was reputedly safe for traders to visit and do business. In a chiefdom where virtually all males specialised in one or other aspects of iron production it was clearly not feasible for them to disassociate themselves from the violent use of their products in defence. In BABUNGO the smiths of the chiefdom were characterised as strong and courageous. In

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[70]. Meillassoux, 1971.

tales of battles or predations of fierce animals it is always the smithing ward of FINKWI that is finally able to triumph by virtue of the strength and aggression of its smiths. Even in those chiefdoms where smiths are said not to go to war the situation is not clear cut. In NSO[71], for example it is said that smiths do not fight in battle. This is true in so far as they are not sent to the battle front but only because they are kept at the rear to repair the guns. Specialist smithing skills in manufacturing and repairing the weapons of war were a scarce resource in chiefdoms other than those that specialised in iron production. Every chiefdom had to have at least one smith in order to produce the rifle shot, which was not traded between chiefdoms. Smiths did not go to the battle front, not because they were kept apart from violence for any ideological reasons, but simply because they were a strategic resource without which it was impossible to do battle in the first place.

Nonetheless, there is something in this apparent disassociation between those producing the weapons of war and military aggression but it works the other way around. It is a common theme of BABUNGO oral traditions that when push came to shove, in disputes with expanding polities such as NSO and BAMUM, hostilities usually ceased with messages stating that:- "You, BABUNGO, are evil but since you make the weapons of war we shall leave you alone". KOM, apparently, did not follow this line and pressure on BABUNGO from this direction reached almost intolerable heights shortly after the passage of Zintgraff in 1889. On one occasion the palace was sacked and one informant, still alive in the 1970s, was among those seized and taken hostage. The response of SANGGE was to issue an order forbidding any manufacture of ironware. It did not take too long before pressure from NSO, BAFUT and BALI NYONGA was brought to bear on KOM to ease up on BABUNGO. Just as

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71. P.M. Kaberry, NSO fieldnotes.

a single smith in a small chiefdom was essential to its viability, so too was BABUNGO to the larger chiefdoms of the region that, by this time, had come to depend on it for tools and weapons. This serves to explain why BABUNGO was not incorporated, itself, by its larger neighbours but not why BABUNGO should not have expanded its own hegemony at the expense of its weaker neighbours.

Two further factors may account for its non adoption of an aggressive conquest policy. Firstly, the highly labour intensive nature of iron smelting probably meant that the majority of the population had little time left on its hands to do much else. Secondly, it was dependent on the specialist skills of its smiths for the manufacture of its products for the market place. Such skills took time to learn and were not risked in opportunistic forays on the battle field.

Nevertheless, BABUNGO did guard its independence from its more powerful neighbours with great zeal, it was described by Zintgraff as not only the most picturesque of the places he had seen but also the most disciplined. It had to be so to survive. It had been harried by NSO, BAMUM, and BALI KUMBAT, and there were serious attacks by KOM both before and soon after Zintgraff's passage. Its fertile soils were highly coveted by KOM, and its iron working expertise the object of the intense desires of BAMUM[72]. Yet, it remained a centre of stability around which many of the other chiefdoms of the Ndop plain clustered for refuge. At one time or another in the late 19th century these included BAMALI, BAMBALANG, BABA, BANGOLAN and BABESSI. As an "economic confederation" in

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[72]. A. Rein-Wuhrmann, in her Mein Bamumvolk, 1925, notes on page 85 that "the king regrets that the tanning and dyeing of sheep and goat skins is not advanced among his people. Likewise it pains him that his neighbour, the king of BABUNGO, knows how to smelt iron ore. He had already sent him valuables but FOBUNGO placed his secret above price". (This translation kindly supplied by E.M. Chilver).

the years 1870-1888 the chiefdom of BABUNGO together with these groups had few rivals in terms of demographic size in the Grassfields[32].

Discipline, however, was not enough to guarantee the viability of the chiefdom. This required a constant flow of trade goods, such as palm oil, salt, cloth, and cowries to fulfil the material needs for social reproduction, for marriage and birth payments, and for fees and payments that allowed for participation, albeit limited, in the prestige and political systems. Without these material inputs the chiefdom would have been broken up by the forces of attraction of its larger neighbours, by physical attack or by more subtle processes involving the exchange of prestige goods for its women or political allegiance.

At the centre of the Grassfields BABUNGO stood at the greatest distance from sources of all these material necessities and was surrounded on three sides by powerful and expansionist states that were strong enough to set their own conditions for trade. It seems plausible that given this position in the wider economic and political set up of the Grassfields it could do little more than produce huge quantities of its specialist commodity simply to stand still and survive in a regional system characterised by the intense competition of individual polities for human resources. However, the situation of BABUNGO and its neighbours in the Ndop plain was not at all bleak. At the end of the 19th century these were highly prosperous and densely settled polities that had exploited the increasing momentum of rising iron production in the second half of the century to tap into both coastal and northern continental trading spheres to the great profit of those middlemen able to transfer goods between these spheres. The BABUNGO iron industry lay at the centre of all this like a priming pump sustaining and promoting the heartbeat

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[32]. See Appendix E.

of commercial exchanges sucking in slave labour and pumping out iron in a continuous cycle of exchange and production.

However, its economic significance was not matched by acquisition of strategic powers and its position in the regional hierarchy was ambiguous. These hierarchical relations between polities were expressed[74] in the course of gift exchange relations between FONs. The wealthy FON sends fine cloth to the poor FON to express his dominance in this set up. What a FON might feed into this system of exchanges was primarily determined by his demographic base and the quality of his commercial contacts that enabled acquisition of exotic goods. Ultimately, it was the mystic powers of the FON that were considered to underpin the prosperity of the chiefdom and hence his rank in the regional hierarchy.

However, ironware is qualitatively different from any other item of production for exchange since it represents an objectification of mystical powers associated with the parallel transformations of ore to bloom by the smelter and earth to riches by the FON[75]. The wealth and prestige of BABUNGO derived from the objectification of these mystical powers in the form of highly valued and prestigious items of material culture. This shortcircuits the normal pathways of mystical powers of the FON leading to

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[74]. These exchanges not only expressed hierarchical relations but also the notion of a community of royals sharing common attributes and privileges through the exchange of goods and commodities reserved to those of the highest rank. They also served to provision the palace through exchanges such as BABUNGO ironware for BAMUNKA palm oil. There was no clear separation of exchange for provisions and exchanges with diplomatic connotations and a single exchange might transcend these two categories as, for instance, when SANGGE sends hoes to BALI NYONGA in exchange for camwood. At one level these are necessary materials at another they express reciprocal invocations of prosperity and peace.

[75]. Hence, the BABUNGO FON has a monopoly over the distribution of double gongs, the main sacra of regulatory associations and is also buried with large blocks of bloom.

demographic fecundity providing the means of production for exchange in order to acquire prestige goods with which to establish rank in the hierarchy. This enabled the BABUNGO FON to enter the gift exchange game at the highest level in exchanges with BALI NYONGA, FUMBAN and KUMBO[76]. Hence, the "jealousy with which FOBUNGO guarded his secrets"[77] and also his ability to withstand the pressure of a shower of prestige goods from NJOYA to give up the knowledge of techniques that expressed considerable mystical powers as well as conferring great material wealth along with high rank in the regional hierarchy.

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76. Gift exchanges with BALI NYONGA and FUMBAN are confirmed by Zintgraff and Rein-Wuhrmann, relations with NSO are less clear having been soured by the support given by SANGGE to early German punitive expeditions.

77. Rein-Wuhrmann (1925).

Conclusions

It is important to stress that while the reality of the political set up was almost certainly more fluid than descriptions in terms of offices, titles and ranks may suggest there remains an inherent solidity that implies that changes in the balance and distribution of power may be slow and ponderous. There appears almost to be a common core of Grassfields beliefs about the nature of the roles to do with authority and decision making that each chiefdom individualises in terms of precise local nomenclature and articulation of titles and offices within the structure for the distribution of political authority and prestige. Essentially it is this political template or map that makes these chiefdoms characteristically "Grassfields".

In the context of the political structures of the populous and prosperous chiefdoms of the Ndop plain there appears to have been no direct and immediate parity between descent group size and political authority. Instead, these structures appear to have been characterised by long term adjustment in which the processes of gradation and substitution operated rather than any open creation of new nobility. This may be the end result of political elaboration and centralisation in place over an extended period of time. Certainly, as we have seen, by the end of the 19th century the presence of large and powerful neighbouring chiefdoms had further inhibited any potential for expansion of hegemony that would otherwise have facilitated the dilation of political pathways to authority and prestige.

In BABUNGO this situation is exacerbated further by the wealth generated by the large scale and specialised production of ironware. It should be noted that in no sense was iron production imposed upon BABUNGO. Iron working was the most prestigious of male occupations in the

Grassfields in the 19th century[78] and both smiths and smelters were actively sought after by neighbouring chiefs. The notion that chiefdoms might determine to cease labour intensive iron production in order to exploit less onerous entrepreneurial roles in regional networks of production and exchange[79] falsely assumes that work is universally evaluated in terms of labour costs and ignores the, perhaps, more meaningful differential allocation of prestige to the various male productive tasks.

Nevertheless, for reasons considered above, such as successful innovation in furnace structure and patterns of fuel exploitation, the emergence of open modes of access to capital equipment, the encapsulation of skills in a single operator in the foundry, and the nodal position in the regional trade network that allowed profitable conveyances to be made between continental and coastal spheres of trade, BABUNGO had become by the end of the 19th century a major and very prosperous centre of iron production. This enabled FON SANGGE to use the products of the industry to subvert the more obvious rules of kingly gift exchange and so resist the prestatory pressures of even the strongest and wealthiest polity of the region, BAMUM. However, at the same time BABUNGO was constricted by its strategic position in the region that inhibited expansion of the political and prestige system at the expense of its neighbours.

This situation bore the seeds of internal conflict and potential schism which, in the final quarter of the 19th century, rose to the surface in the form of a succession dispute at the highest level that gravely threatened the integrity of the chiefdom. It was only a fortuitous set of historical circumstances culminating in the arrival of Zintgraff that enabled BABUNGO to survive as an independent polity into the colonial period. Accordingly, in this

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78. Hutter, 1905.

79. See Warnier, 1983.

particular situation of local strategic relations inhibiting expansion of hegemony and a political structure that severely limited access to political authority and prestige there emerges a clear contradiction between high levels of iron production and the maintenance of the integrity of the polity in which the industry is set. In so far as it may be viewed that those very external conditions that promoted local specialisation as a means of preserving independence and high rank in the regional hierarchy of kingly gift exchanges also served to inhibit the expansion of hegemony we may have arrived at some understanding of why the BABUNGO phenomenon is apparently so rare.

CONCLUSIONS

Methodology

This thesis has been largely an exercise in salvage ethnography: attempting to reconstruct something which no longer takes place. Accordingly, it is particularly appropriate to review the adopted methodology in terms of the limitations of available data, in their different orders of validity and usefulness and, hence, finally the degree of plausibility of the reconstruction.

In my surveys of the various Grassfields chieftaincies, initial approaches were always made through the FON and palace. This generally resulted in the acquisition of an interpreter provided by the FON and created an ambivalent situation in that while useful in allowing one to go anywhere, meet anyone and observe what was going on, there remained the very important fact that one was with a representative of the FON and, initially at least, everything was to be reported back to the palace. In communities with very strong distinctions between royals and non-royals, this clearly influenced what people might or might not say. However, living for an extended period in a community such as BABUNGO, it was reasonable to hope to break down barriers of fear and mistrust and establish independent links with potential informants.

First interviews always took place with the FON in council since this is what people have been taught to expect by previous experience with scholars and administrators. This proved not very useful since no assistant was ever up to dealing with a situation of conciliar interviews. Far more profitable in the long term were individual interviews with elderly informants since it was possible to control the pace of discourse and so give the assistant a chance to do the job of interpreting reasonably well. In the short term even this was not the best situation, since it proved to be very much of a learning process for assistants who generally had little firsthand knowledge of the topics under discussion. Matters improved as both researcher and assistant learnt from each other and from informants. On the positive side it was possible over time to mine deep, to pick up details of individual life histories, to generate an interest in things almost forgotten that would be maintained after the interview so that often an informant would come back with information that came to mind later on. Repeated interviews with regular informants allowed for the development of a strong degree of trust and openness that allowed things to rise to the surface that might not otherwise have come to light.

There are a number of difficulties inherent in dealing with the different areas of enquiry and different kinds of data in a corroborative exercise such as this. For instance, with regard to the material culture dimension of this study, the availability of physical evidence of innovation in furnace forms and detailed descriptions of such innovation may suggest a causality which is unintended, ie. the emergence of a particular furnace form was not the cause of the BABUNGO iron boom but rather an enabling factor that depended on other social factors prompting the boom in the first place. There is a complex interplay of factors in that the physical evidence of structural changes in furnaces reflects the response of these industries to changes in demand and the regional factors of production.

In other words, the quality of the evidence ought not to be confused with, or even determine, the weight it is given in the argument or priority in description. Hard evidence from excavation of furnace structures to determine continuity or from the collection of material samples for analysis or from surveys of smelting debris to determine relative levels of output, although useful for comparative purposes, does not stand alone but, in this ethnographic exercise, requires a social context that itself derives from sources which are unmeasurable and liable to subjective distortion. So not only is the quality of the evidence not directly linked to its weight but also the very context in which it may be understood is what ultimately determines its value. Accordingly, this is a corroborative and contextual exercise attempting to bring together different sources of data in a meaningful way.

Extrapolation from survey data is made in order to give a qualitative "feel" to notions of rates and volumes of outputs and inputs. It is not an attempt to give a false air of being scientific. The data themselves are not susceptible to rigorous statistical or comparative analysis and are only really useful in broad terms of comparative inferences regarding the relative economic importance of particular centres of production. The imprecision of the values we can attribute to sets of inputs and outputs implies at the very least a 20% margin of error across the board.

This also applies to attempts to relate labour costs to exchange rates. The latter are subject to an even greater margin of error given the general obfuscation of actual rates by numerous factors, quite apart from the difficulty of recovering adequate data many decades on.
It is considered justified to attempt to measure actual labour costs of production since this is, plausibly, a critical factor in the context of an intensive industry operating at full pace. A comparative assessment of relative labour costs of production, that is based on data derived in broadly similar fashion from each of three centres, WEH, OKU and BABUNGO, that suggests the latter was eight times more efficient in terms of labour costs per unit of output can scarcely be ignored and must bear some relation to the enormous volume of BABUNGO production in the 19th century. The consideration of labour costs associated with establishing a foundry and smithy are intended to highlight the extraordinary element of capitalisation apparently characteristic of the clump furnace industries.

The different orders of usefulness and validity of testimonies of elderly informants is illustrated by the nature of accounts of technology and organisation of labour in iron production. There was in the mid-1970s scarcely any current vocabulary of, or discourse on, iron smelting and its organisation and, hence, little in the way of memories restructured in light of current experience since there was none. This difficult situation was compounded by the strong echoes of earlier deliberate falsification and mystification of processes and an almost universal overemphasis on the unknowable. It was often claimed that the knowledge of the use of medicines upon which the whole thing relied had been lost.

It was necessary to seek to salvage memories of those once active in the industry. Essentially, the exercise was one of searching in the dark for fixed points to work out from with the aid of assistants who had, understandably, little or no knowledge of African metallurgy. Breaking down these barriers, the point was reached where not only were useful accounts of iron working constructed through repeated interviews with elderly former participants but it became possible to take such informants to foundry sites and virtually rehearse the process of smelting in terms of what, where, how and when different steps were taken. All of this was a very far cry from initial accounts recovered which suggested curious practices such as blowing bellows to burn elephant grass to produce sparkling iron <u>at the top of heaps of slag</u>. Further, while the earliest recorded accounts of BABUNGO iron working are frustratingly coy, and potential observers were clearly not allowed open access to the process, where there is sufficient data to confront oral accounts with those of external observers there is evident a very close correspondence between sources.

There are further major problems inherent in the division of knowledge between those using the foundry, needing only to know enough to gather ore and fuel, and the WOENFIIBUU actually stewarding the operation, and the TUNAA with exclusive knowledge of both defensive and extractive medicines. This differential encapsulation of knowledge is necessarily reflected in the systematic silences of informants who, given their age in the final decades of the operation of the industry, had been neither TUNAA nor WOENFIIBUU in their lifetimes. Accordingly, only a limited view of what was going on was available, and this is reflected in the paucity of data on the use of medicines in smelting, the elusive and patchy information on rituals administered by seniors long since dead, and the lack of direct testimonies of what it meant to be a WOENFIIBUU.

Similarly, the emphasis in the text on co-operative smelting work groups as a principal feature of the organisation of labour, is partly a reflection of the structural position of informants within the industry in its last years of operation. In other words, informants surviving into the 1970s were, in the first decades of the present century, free-born but still dependent males who had first to gain access to capital equipment and skills through contributing labour to the TUNAA and then, themselves, had to marshal labour in the form of cooperative smelting teams. This does not imply that we have presented a false picture of what was going on but rather that the inherent biases of informants lead inevitably to an overemphasis on those aspects directly linked to their personal experience and mask those areas not falling into this domain. However, given that labour recruitment is a critical factor in an industry operating at these levels of output then this emphasis on this particular mode of organisation of labour does not represent a significant distortion of what was actually going on.

Further, the stress on sharing and cooperation within iron production, while largely ideological in veiling the great accumulation of wealth by individual compound heads, was as significant in production as any single technical element. This ideological stress again arises from the structural position of informants who, as dependent males working very much for the benefit of seniors, were the main object of this ideological focus. Given the mystical role of sorcery in the transformation of ore to artifact and the usual levelling mechanisms performed by witchcraft accusations, it seems clear that, without this ideological mask of sharing, output would have been unlikely to have reached such enormous levels.

Hence, dealing with iron working in these ways was very different from dealing with accounts of so-called "traditional" political organisation or history. In the political realm, accounts were obtained from informants who, for the most part, were barely ambulatory and no longer took an active part in political life whether at local or chiefdom levels. These accounts stressed the rigidity of the "traditional" title system and the former lack of political powers of the FON - both aspects that stand in strong contrast to the current situation where the FON has captured much of the authority that used to lie within the domain of BA and TIFWAN and is presently the prime agent for the commoditisation of titles and offices to the new elite.

Political "history", as opposed to organisation, is even more difficult to deal with. The limited accounts of the succession dispute following the barren death of FON NYWIFON that are presented in the thesis were obtained from sources on both sides of the dispute, including a son of a brother of NYWIFON, the brother being one of two candidates presented by BA for the succession, the current BA and his father[1], two sons of retainers to NYWIFON, including one who himself became an important retainer of SANGGE in the first years of colonial rule, and many others not so closely linked to the main protagonists. The son of the brother of NYWIFON was most forthcoming since, perhaps, his personal loss was greatest amongst those left to discuss the issue even though his own mother had been given to his father by SANGGE, supposedly in recompense for the chieftainship. Those that had gained or, at least, retained their positions, including BA, were not quite so forthcoming.

The passage of time meant that in no way was it ever possible to select informants from a large potential pool but rather one was obliged to deal with those who had survived, barring insurmountable infirmity or personality problems.

These difficulties were further compounded by the complex interplay between actual events, their ideological representation and the feedback on this from later events themselves influenced by what happened originally and its ideological representation and so on and so on. This is particularly true in the case of the on-going dispute between the FON and BA that, to date, is in its twelfth decade. Accounts of historical political "events" are, given the consensual silences, not very useful in terms of throwing detailed light on the nature of competition for power but are of somewhat more use in drawing out the broad

[1]. Succession is "normally" patrilineal but in the absence of a suitable candidate a uterine nephew may succeed.

outlines of where power lay and the arenas of conflict over it. It is inevitable that the account of the political organisation will, regardless of attempts at rectification, remain to some extent idealised.

Finally, oral traditions about political and historical aspects of the 19th century from a single source were found to be largely meaningless when looked at in isolation. Historical enquiry based in a single chiefdom in a situation of fluid regional hierarchies encompassing cross-cutting and on-going relations that link chiefdoms at different levels, ie. between FONs, between regulatory associations, between clan heads and others, is not a useful method of determining past alliances or rank. It is only when a series of such "histories" are confronted with each other that the material becomes useful. When set in the context of particular sequences of hostility and alliances, and then cross-checked with the accounts of neighbours together with early German and British archival materials and the extensive coverage in the fieldnotes of Jeffreys, Kaberry and Chilver, then a useful framework can be constructed in which to place and understand individual sources.

Interestingly, Jeffreys' historical material was gathered from the perspective of his hypothesis that migration was <u>the</u> explanatory factor that could account for the distribution of peoples, languages and culture. It is not altogether clear whether the informants that Jeffreys talked to actually understood "history", as such, to be meaningful in the form of literal answers to the question "where did you come from?". What he ended up recording as migrations, traditions of origin, and settlement tales actually represent statements about alliances and putative descent and compose a freezeframe camera shot of hierarchical relations between groups at different levels at a certain point in time. The broader the sweep of this particular brush and, hence, the greater the multiplicity of cross-cutting relations revealed the more useful the material becomes at a general and regional level.

As sources the archival materials are frustratingly limited in the light they throw on the Ndop plain in the early years of colonial rule. The almost total preoccupation of the German regional administration with the "Bali-fragge"[2], ie. the relations between BALI NYONGA, its neighbours and the nascent colonial administration, appears to have left it with little time to record dealings with other areas supposedly under its administration. Much more useful are the early published accounts of explorers, geographers, geologists and missionaries[3] in the light they throw on local economic and technological organisation largely ignored until late[4] in the lifetime of a German colonial administration more interested in recruiting labour for coastal plantations. The earliest major unpublished source on the Ndop plain is the 1925 Assessment Report of Drummond-Hay. This describes selected features of social and political organisation, and traditions of origin and settlement. The concern was to group together chiefdoms on the basis of common origins and social customs into administrative units and the report reflects these aims. Statements taken from representatives of particular chiefdoms were unjustifiably generalised for the area as a whole and, accordingly, the data must be treated with due caution. However, on the positive side, the British administration were concerned, unlike their German predecessors, with local economies and valuable data on BABUNGO and OKU iron production and other craft activities were recorded.

The limitations on the usefulness of the data set by the weaknesses inherent in the methodology adopted are largely unavoidable given the reconstructive and corroborative nature of the exercise. However, if this study were to be redone in the best of all possible worlds, a much greater effort would be made to pick up more than simply a passive understanding of the language since questioning informants through relatively inexperienced assistants can never be ideal. It is now considered that a

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[2]. Personal communication, Sally Chilver.

[3]. Zintgraff, 1895; Hutter, 1905; Guillemain, 1908; Moisel, 1908; Vollbehr, 1912; Hassert, 1917; Emonts, 1927.

knowledge of one Grassfields language might be more useful than was originally thought at the time of fieldwork.

At the point when this study was initially undertaken, the exercise was somewhat less reflexive than would be the case today and more to do with a notion of constructing an ethnographic account abstracted from individual experiences. Given the nature of the exercise in seeking to present a generalised reconstructed account, it is inevitably based largely on individual life histories gathered in the course of interviews with elderly informants. While these informants were still alive it was thought inappropriate to present the material in the form of life histories and personal testimonies. If the material was to be rewritten from scratch, now that all elderly informants that contributed to the study are deceased, and given some way of cancelling out the effects of corrective hindsight was available, it would be presented in a more reflexive style with a fuller discussion of personal testimonies and life histories.

In respect of the material analysis of samples collected in the field, it may be necessary to more narrowly formulate the questions to be asked of the analysis. The broad treatment of extensive collections of samples tends to result in a set of generalities that are essentially confirmatory, ie. the analysis verifies what is already known, or presumed from other sources but takes the argument no further. Specific questions regarding the nature of the development of technological relations between chronologically and spatially distinct industries within a wider region of production are more interesting but almost certainly require a presampling exercise to determine what materials are effectively available and what questions are raised by all the other evidence to hand.

The original[8] collection of samples and subsequent analysis constituted just such a presampling exercise. Various compositional analyses including quantitative X-Ray Fluorescence analysis and X-Ray Diffraction were brought to

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[8]. Materials collected by Fowler, Warnier and Rowlands in 1975-78 were lost in circumstances beyond the control of the researchers, see Warnier and Rowlands, 1988.

bear to determine the physical structure and chemical and mineral components of material inputs and outputs from the smelting process. The chemical and phase compositions of slag are dependent upon the smelting process and nature of material inputs. Slag may be grouped according to compositional elements that indicate process and those that indicate ore. The object of the analysis was to seek commonalities in material composition of slag that might indicate links and discontinuities between these industries in terms of technological variation or use of different ore types. Analysis of slag and associated ores also enabled a broad estimate to be made of the relative performance of these industries in terms of efficiency expressed as a percentage of the total available iron in the ore that was recovered in the smelting process.

One potentially fruitful area of analysis was excluded from the enquiry. This concerned the analysis of slag particles occluded in finished ironware to determine likely ore source and, hence, origin of manufacture. A collection of old ironware from the wider Grassfields region and beyond might, in the light of such analyses, offer valuable data on trade flows and areas supplied by individual centres of production. Insufficient resources were available to the researcher to pursue such an enquiry. With hindsight, however, it is clear that this kind of analysis would depend entirely on a firm and detailed knowledge of the variability of composition of particular ore sources that is presently unavailable.

The archaeological determination of the spatial and temporal parameters of the Grassfields clump furnace industries clearly represents the next step to follow this reconstruction of the BABUNGO iron industry. Recent advances in C14 dating techniques now permit the analysis of very small volumes of carbon occluded as charcoal sealed in lumps of slag and, hence, uncontaminated by later disturbance.

However, vital as it may be to know the time depth of these industries and their chronological relations with others in the region and beyond, there is a further and highly significant dimension to the chronological analysis of the physical remains of smelting. In the text of this thesis we have emphasised the importance of the phenomenon of a highly intensive and sedentary iron industry set within a Grassfields environment in terms of the light this throws on presumed ecological constraints on production and tendencies to innovate in these industries. The relationship between a fuel hungry iron industry and its available fuel base is clearly on-going and interactive and likely to leave physical evidence in the form of changes in the environment that will, in turn, be reflected in the range of species used for fuel and the form this fuel takes. If we are able to extract uncontaminated charcoal for dating that is also susceptible to identification in terms of species of trees from which the fuel was obtained then we are in a powerful position to understand the range of species exploited and the way in which this alters over time in response to the effects of the needs of the industry for fuel in changing the flora of the area exploited. It is possible that analysis of pollen remains entrapped in the clay of the furnace body might offer data of a similar and corroborative nature.

A further potential dimension to the investigation of the interactive relations between iron industries and the environment relates to the potential effects of loss of tree cover on the high lava plateau and consequent increase in sedimentary deposition on the plain below. It may be that sedimentary core analysis would prove fruitful in these terms. A related area of enquiry concerns the deposition of pollutants from iron smelting that might be susceptible to analysis in terms of the material origins of the pollutants and the extent and degree of their deposition.

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Summation

How does all this relate to other work in the fields addressed in this research? As a descriptive ethnography of Grassfields iron production, this thesis adds to our knowledge of the economic history of the Bamenda Grassfields area in the immediate precolonial period, and represents an increment to the earlier work of scholars such as Jeffreys, Kaberry, Chilver, Warnier and Rowlands. In terms of studies of sub-Saharan iron working, it is hoped that something of value has been contributed with respect to our understanding in a number of areas.

Emphasis has been given to the impact of iron production on economic and political structures at both local and regional levels. Iron working very often leaves hard physical evidence of its activity in the form of virtually indestructible silicate slag and other debris susceptible to quantitative and material analysis, that permit inferences to be drawn that are scientific in so far as they may be testable. As such it provides a good potential for hard data on economic significance of particular centres and technological relations between industries[6].

The significance of iron working has been stressed here in terms of its conflation with the conceptual context of ritual and political power, sorcery, and mystical and material transformations. In sub-Saharan Africa those beliefs that underpin iron production appear to be very closely associated with core beliefs about the nature of things and the role of human, mystical and other material agencies in providing for the satisfactory reproduction of human society. Beliefs and values associated with iron production in the Grassfields suggest a paradigm less exclusively procreational than indicated by Herbert[7], and more to do with deeper underlying notions of sorcery, transformation, causation and fecundity. This notion of mystical powers represents a binding metaphor linking a number of different elements. In the material culture

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[6]. See De Barros, 1985 and 1986.

[7]. 1988.

domain, these powers are realised in the production, exchange and use of highly ritualised objects. The ritual and political significance of the double gong, smith's hammer and other iron sacra in Grassfields societies expresses the value of ironware in this scheme of things.

Our knowledge of the global range of iron working practices has been extended in recording the seemingly unique innovatory characteristics of the BABUNGO industry, including a very high degree of capitalisation, a resident slave celibate specialist smelting steward, clientage based access to capital equipment, skills and medicines. More importantly this case illustrates the potential for innovation as shown by changes in furnace structure to increase capacity and reduce maintenance costs, the creation of new patterns of access to capital equipment, elaboration and separation of task roles in production, fluidity in forms of specialisation, adjustment in costs of material inputs in altering patterns of fuel usage[8], all in response to changing conditions in regional competition. All these characteristics of the BABUNGO industry argue against the notion of sub-Saharan African iron working being necessarily extremely conservative and hidebound by taboo and ritual.

The presence of a sedentary and highly fuel intensive industry set within a largely grasslands environment has important implications for notions of ecological constraints on sub-Saharan African iron production. The BABUNGO pattern of fuel usage, especially its parcelling up of the available resources between smithing and smelting, appears to demonstrate a strong degree of potential for innovation in these industries.

We have stressed the importance of not falsely conflating the roles of smith and smelter, nor obscuring any other serial division of the organisation of tasks in the transformation of ore to artifact. This is especially important with respect to the kinds of beliefs and values associated with iron working because rarely does one unit do all tasks but rather they are parcelled out to various segments of the iron industry that may be associated with

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[8]. See Goucher, 1981 and 1984.

diametrically opposed beliefs and values. The BABUNGO case brings things into sharp focus with association between smelting and one set of values and smithing and another set of oppositional values, and the way this is linked to expressions of different kinds of political and ritual powers within the chiefdom.

Specialisation may be viewed as a cultural artifact, a particular tradition of parcelling up and allocating tasks, values and beliefs. Particular forms of specialisation may be prerequisite to the development of large scale production rather than the other way around. Hence, the separation and recombination of technological elements and divisions of tasks within iron production, together with the reallocation of associated conceptual baggage, beliefs and values, in response to external factors may represent highly significant factors in the development of particular technological systems. There follow from this important implications for our notions of the nature of technological change, in furnace structures and processes, and the development of forms of specialisation, inherent in the apparent receptivity of these industries to impulses to innovate and the directions this innovation may take. We have presented a model for the emergence of BABUNGO as a major centre of iron production in the 19th century based on a number of enabling factors, which have evolved interactively with the rising momentum of production, itself generated by dynamic regional structures of exchange and hierarchy.

The BABUNGO iron industry, together with those of the western Ndop plain and BAGHAM, appears to represent the persistence of a few isolated centres in the face of cessation of large scale production elsewhere. These centres share certain basic characteristics that include a mode of specialisation whereby smith and smelter are quite separate, a specific "clump" furnace type and the use of generally similar Goethite ores. Elsewhere, at the end of the 19th century, interspersed groups speaking the same set of related languages and, from the archaeological and linguistic evidence, in place together for millennia not centuries, are found to be using a quite distinct mode of specialisation that combined smithing and smelting in one location with a different furnace, an open hearth, to smelt a quite different "ore" - in this case old slag seemingly produced by an earlier clump furnace industry.

Without further archaeological research it is impossible to say with any degree of certainty how or why this situation came about and the problem is susceptible to a number of speculative explanations. If, as is suspected, this is occurring in the 1780s, it may be connected to the combination of external effects of the slave trade and the internal conditions represented by inherent and seemingly unique tendencies for these industries to increasingly capitalise, in furnace and foundry construction, as a reflection of investment in future production. The increased insecurity signalled by the massive exports of slaves from coastal regions to the south of the Grassfields in the 1780s and 1790s[*] may have tended to undermine confidence and deter investment in highly capitalised clump furnace industries. The rising imports of European iron that served to pay for the slaves seems also likely to have undercut the wider market for Grassfields ironware at this time.

The data available are inadequate to render more than simply plausible the idea that out of a formerly common and more widespread earlier clump furnace technological tradition have emerged two quite distinct variant traditions. One was represented in BABUNGO by a developed larger capacity continuation of the clump tradition. The other, an apparently diametrically opposed development, was represented by the slag recycling industries of OKU, only a few hours walk away from BABUNGO, and elsewhere in the area characterised by a reintegration of smithing and smelting based on an enhanced smithing hearth. The general implication of this situation is that we ought to take great caution in inferring developmental relations between iron working traditions from continental wide distributions of furnace structures, technological processes and organisation of working practises.

More specifically, it may be the case that technological change may sometimes take an apparently

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[*]. See Richardson, JAH, 1989.

unusual form and direction exemplified in this case by the fate of a relatively complex and elaborate technology that appears to bear the seeds of its own collapse in its potential and tendency for increasing capitalisation. Further, the multiplicity of forms of specialisation in Grassfields iron working found at contact together with the presence of four distinct technological traditions, whatever their developmental relations, suggests that processes generating technological diversification at different levels and in different directions have not been restricted to a small area around the OKU massif and Ndop plain in the 18th and 19th centuries.

But why should BABUNGO and not some other centre of iron production not only persist in large scale production but even innovate its technology and work practices? One might speculate that those centres of production in the heart of the region are likely to have developed more efficient working practices in order to offset higher transportation costs incurred as a result of geographical position. There is really very little that we may say concerning this in the absence of further archaeological research to determine the spatial and temporal parameters of these clump furnace industries. If central position in a regional zone of production is the significant factor then any of these centrally located iron producing chiefdoms, whether BABUNGO or BAMESSING, might have emerged in this fashion. There is a strong case to be made that BAMESSING suffered the slings and arrows of an "outrageous fortune", in its late nineteenth century dispersal, that BABUNGO whether by chance or more likely through shrewd manipulation of intelligences and alliances, managed to avoid.

If BABUNGO represented the last bastion of older established chiefdoms that remained in the face of the expansion of BAMUM, NSO' and KOM from the 1830s through to the 1900s, buffered by refugee settlements that undertook a vital transportational role and so permitted even higher levels of output to be achieved, then this itself may be a function of preexisting power based on demographic and material wealth. In other words, BABUNGO's strength may have encouraged those displaced groups to cluster around it and served to increase further the momentum of production. Although seemingly plausible, this again can not be determined on the basis of the available evidence and begs the question as to why BABUNGO should have had this strength in the first place. This point brings us back to some final comments on the nature of the relationship between the 19th century political economy of the northern Ndop plain and the socio-economic formations found at contact.

The BABUNGO iron industry is but one example of a 19th century Bamenda Grassfields economy exhibiting a very high degree of specialised production not closely linked to ecological constraints. To what extent may this be attributed to conscious collective economic decision making? What is the nature of the relationship between centralisation of political powers and specialised production in the Grassfields context? The notion of comparative cost advantage to explain the origins of specialisation in the Grassfields does not require the existence of conscious and concerted decision making processes. Concentration of political powers together with collective economic decision making are, however, striking features of the socio-economic organisation of the area at contact and are linked in this dissertation to the managerial requirements imposed by the intense specialisation in production exemplified by BABUNGO iron production in the last century. In the Grassfields case, the high degree of political centralisation that is linked here to managerial requirements of intensely specialised local industries is given expression by the "politique economique villageoise complexe et reflechie" noted by Warnier[10] for some chiefdoms of the western Bamenda plateau in connection with animal husbandry.

However, BABUNGO is but one of a large number of middle ranking Grassfields chiefdoms, with populations at contact between two to three thousands apiece, that were dwarfed by the much larger polities of BAMUM, NSO, KOM and BAFUT. It follows from this that physical or archaeological evidence of intensive and large scale

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[10]. 1983.

production ought not to be automatically viewed as an integral or causal element in the emergence of very large and centralised political formations. In this study it has been argued that the very high levels of output of BABUNGO ironware at the end of the nineteenth century are closely linked to high levels of insecurity and external threat. Accordingly, the BABUNGO phenomenon may be rare precisely because those very factors that promote high output also threaten the on-going integrity of the community in which the industry is set. Hence, intensive production may represent a phenomenon that is both external and antipathetic to the development of large and centralised political formations yet, at the same time, may be linked very closely to their emergence. Evidence[11] from the BASSAR region of Togo, a major and intensive zone of iron production, similarly set apart beyond the immediate reach of yet still threatening large and powerful neighbours, appears to support this view.

The centralisation of political powers is also relevant to a necessary reassessment of the impact of the raids and settlement of the BALI CHAMBA on the Ndop plain. In 1979, in a joint article written together with Jean-Pierre Warnier on the scale of iron production in the area, we sketched the historical background in terms of the dramatic effects of the BALI CHAMBA raids, c.1825-30, in compacting settlement leading to more politically centralised groupings. The later, c.1840s, settlement of BALI KUMBAT on the western margin of the plain was thought to have disrupted trade to the extent of contributing to the decline of large scale BAMESSING iron production. Reexamination of the data in the context of the development of this dissertation has suggested a different picture.

The northern Ndop plain almost certainly escaped the main sweep of the CHAMBA leader GAWOLBE's mounted force, reflected in the accounts of Koelle's recaptive informants, that had its greatest impact on the southern BAMUM, the southeast margins of the Ndop plain and northern BAMILEKE areas, the Bamenda Plateau and edges of the palm oil producing belt. At the same time the unmolested iron

[11]. See Barros, 1985.

producing chiefdoms may well have benefitted from the disruption these raids caused.

It is now argued here that rather than CHAMBA raids and settlement leading to the socio-political formations found at contact, it is the other way around. In other words, the processes leading to these socio-political formations are the very factors that drew the CHAMBA into the Grassfields in the first instance. If, in Northrup's terms[12], it is the export of human capital which has allowed growth in these systems, it may well be that the CHAMBA were simply following down trade routes that had earlier taken slaves and kola northwards.

Where there are, as in most Grassfields chiefdoms, no "official" chroniclers of chiefdom history, it is perhaps inevitable that our informants should offer us bad history, ie. the present explained in terms of the earliest remembered dramatic historical events. It may well be that the CHAMBA events have been inflated out of proportion to their true impact and if so it is a remarkable tribute to the propaganda of fear, echoed and reverberated by Koelle, that GAWOLBE most certainly generated to assist his activities.

In attempting to deal with the political economy of the Ndop plain and its articulation with the wider Grassfields structures of specialisation, exchange and hierarchy, greater emphasis has been given to an explanation of the rise or fall in production in terms of endogenous changes arising in the regional factors of production. This is not to deny the external world and the importance of exogenous factors but simply to say that for external factors to have effect they must encounter a certain set of preexisting conditions.

The details of iron working, the precise mode of specialisation, recruitment, organisation and rewarding of labour, technical innovation in furnace structure, etc. represent two things. Firstly, they are factors likely to have developed in interaction with increasing momentum of production. The effects of positive factors assisting in the acceleration of production against the influence of

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[12]. 1978.

intensity of production automatically selecting for successful work practices can not easily be separated out. Secondly, they are all enabling factors which in themselves do not entrain any particular level or rate of production. This is more correctly attributed to regional structures of exchange and hierarchy and the position of the producing community within them.

However, the argument that the socio-economic and political structure of individual chiefdoms is a function of their localisation in space relative to sources of prestige and other exotic but vital commodities, ie. position in regional structures, is essentially only descriptive and circuitous since each is necessarily a reflection of the other. It is the historical dimension, the outcomes of stress and change both from within and due to external factors, that explains best the situation of individual groups and the structures they co-habit. Regional structures are dynamic, altering over time. The sum of explanations of individual changes is the explanation of diversity in identity built up from a common stock of elements characteristic of the region.

It is likely that these structures are fluid but over relatively long periods of time. If they operate as prestige systems we must ask what precludes exotic commodities antecedent to 19th century long distance trade goods playing a similar role in competition for power in the regional hierarchy. And, indeed, what constitutes the exotic? By some definitions the two key commodities produced at the centre and margins of the Grassfields, ironware and palm oil, constitute exotic goods since each did not compete with the other at the point of its manufacture, ie. no ironware was produced by palm oil producing zones nor vice versa. The regional system therefore has a potential internal dynamic independent from the outside. It does not necessarily depend on external, or non-Grassfields, trade but may be seen to have potentially arisen from local gift exchange relations between elders[13]. The conflation of "trade" and

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[13]. The very strong degree of complementarity implies that at the centre BABUNGO seniors were able to manipulate and control the flow of palm oil to which they alone had

"diplomatic" relations seen in the context of these relations at the end of the 19th century may support this view.

However, as the point of contact drew near the Bamenda Grassfields were significantly engaged in continental and coastal trading spheres. Contrary to the view expressed by Warnier[14] concerning the solidity of the boundaries between these spheres, accounts gathered from the specialist traders of BABA and BAMUNKA clearly indicate that such boundaries were traversed in highly profitable commercial relations that linked the larger "port" markets of the region in conveying exotic goods between continental and coastal trading spheres. In one sense the dual peripherality of the Northern Ndop plain vis à vis these spheres is precisely what defines its centrality within the Grassfields in terms of production of high value low volume commodities that brought great wealth and provisioned regional networks of trade and exchange.

What defines centre and periphery? The Ndop plain lies at the geographical centre of the wider Grassfields region and in terms of the production of high value low volume trade goods constituted the economic and technological centre. In terms of material and human wealth, expressed in population density and compound size, it was probably unsurpassed by any other Grassfields area. We may take the argument a step further and ask what constitutes economic development? If we take the indigenous definition of wealth and success then economic development is primarily demographic. Therefore, any definition of what constitutes the periphery that rests on the premise of economic underdevelopment can not apply to the northern Ndop plain chiefdoms.

Further, in the Grassfields context, demographic success appears antipathetic to political elaboration and centralisation. BAMUM is a case in point with the very low

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access through regional markets and exchange networks.

[14] 1983.

relative population density[15] of c.8 per km² that contrasts with densities elsewhere of c.30 per km². On the western Bamenda plateau the chiefdoms of the "centre" had lower population densities than the so-called "slave" populations of the nearby oil producing zones[16]. Economic development ought not to be automatically conflated with the centralisation of political powers. Centre and periphery may be useful conceptual tools but there is in the case of the Grassfields no single defining axis but rather a whole series of different axes, economic, technological, ritual, political and strategic whose complex interplay in time and space create the structures we are trying to study.

What is seen at contact is but one stage in a long term and on-going process of competition for power leading to the various shifts and growth and decline of different centres in the region. The elaborate and centralised nature of the political and ritual institutions of many of these groups, together with the very high degree of both regional and local specialisation in production for exchange, both testify to the antiquity of the processes at work.

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15. Warnier, 1983, also stresses the penury of the BAMUM population.

16. Warnier, 1983.

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APPENDIX A

SCHEDULE OF BAMENDA GRASSFIELDS IRON WORKING SITES[1]

NDOP PLAIN

1. BABUNGO 2. BAKWANG 3. IYUNG 4. MBELUNG 5. NKUM
6. NGEMSIBA 7. IBAL-OKU 8. IKWITOH 9. MBELE-KWANSO
10. NDZEREM 11. NTURR 12. BAMESSING 13. BABANKI TUNGO
14. BAMUNKA 15. BABESSI 16. BAFANJI 17. BAMENYAM
18. BAGHAM.

SOUTH-WEST

19. BIG BABANKI 20. BAFUT 21. NKWEN 22. MANKON
23. SONGWA 24. MBUTU 25. MBU 26. AKUM 27. AWING
28. BABADJU.

NORTH-WEST

29. ESU 30. WEH 31. ZOAH 32. FUNGOM 33. NYOS
34. NDEWUM 35. MMEN 36. KUK 37. WUM 38. FUNDONG
39. UKPWA.

NORTH-CENTRAL

40. ABU 41. LAIKOM 42. ABOR 43. MBESINOKU 44. AFUA
45. NJINIKIJEM 46. OKU 47. MISAJE 48. NKANDI
49. FONFUKKA 50. NGA.

NORTH-EAST

51. LUS 52. GOM 53. NTONG 54. MENANG
55. MBEBJI 56. NTU 57. NTUNDIP 58. BANTEN 59. MBOKAM
60. SHI 61. NSOB 62. NKAR 63. VAIKOVI 64. TAVISSA
65. KOVIFEM. 66. DIN. 67. JOTTIN 68. KIFOEM 69. NZING.

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[1]. Jeffreys, 1942, and "Tribal Notes" n.d., both unpublished; Fowler, unpublished.

APPENDIX B

DISTRIBUTION OF OLD AND RECENT FURNACES AND ASSOCIATED DEBRIS

WARD/Sub-Ward	OLD FURNACES/DEBRIS[2]		NEW FURNACES/DEBRIS	
FINKWI				
Itiyoe	6	1576	0	0
Tobo	13	4584	5	5449
Nkafinkwi	9	3995	4	9829
Chikau	0	0	7	15975
TOTAL	28	10155	16	31253
FINTENG				
Nkafinteng	4	1180	7	21398
Titoh	4	2057	8	20650
Nkone	1	442	3	5984
TOTAL	9	3679	18	48032
MBUKANG				
Ikwikang	0	0	4	8349
Noentenkang	3	1747	1	1210
Itenkang	0	0	0	0
TOTAL	3	1747	5	9559
TONG-MEYOE				
Ibia	4	3277	3	7748
Tavoendong	3	694	1	862
TOTAL	7	3971	4	8610

[2]. Volume of debris in cubic metres.

WARD/Sub-Ward	OLD FURNACES/DEBRIS[3]		NEW FURNACES/DEBRIS	
TONG-FUBUU				
Tondo	0	0	1	1399
Ikwindo	0	0	1	4250
Tighau	2	884	1	2215
Mbungwi	3	3693	1	275
Ibau	3	1090	3	9385
TOTAL	8	5675	7	17524
TONG-MENOE				
Mbenjeh	0	0	7	11295
Ngwole	0	0	2[4]	4430
TOTAL	0	0	9	15725
OTHER[5]				
Long[6]	0	0	1	2215
Iyung	3	2086	0	0
Bakwang	5	1000	0	0
Mbelung	1	274	0	0
Nkum/Ibal Oku[7]	3	Scatter	0	0
TOTAL	12	3361	1	2215

3. Volume of debris in cubic metres.

4. Includes original foundry site of YIGHAU.

5. Sites outside limit of late nineteenth century settlement.

6. Area immediately to south of NGWOLE, site of BANGOLAN settlement. Foundry built by BANGOLAN individual on clump furnace model.

7. Two sites at IBAL-OKU reduced to a wide scatter of debris by OKU smelters collecting slag, since this settlement established in the 1920s.

APPENDIX C

PERCENTAGES OF TOTAL FURNACES AND DEBRIS VOLUMES

WARD/Sub-Ward	%OLD FURNACES/DEBRIS		%NEW FURNACES/DEBRIS	
FINKWI				
Itiyoe	9	6	0	0
Tobo	19	16	8	4
Nkafinkwi	14	13	6	7
Chikau	0	0	11	11
TOTAL	42	35	25	22
FINTENG				
Nkafinteng	6	4	11	15
Titoh	6	7	13	15
Nkone	1	1	5	4
TOTAL	13	12	29	34
MBUKANG				
Ikwikang	0	0	6	6
Noentenkang	4	6	1	1
Itenkang	0	0	0	0
TOTAL	4	6	7	7
TONG-MEYOE				
Ibia	6	11	5	6
Tavoendong	4	2	1	1
TOTAL	10	13	6	7

WARD/Sub-Ward	% OLD FURNACES/DEBRIS		% NEW FURNACES/DEBRIS	
TONG-FUBUU				
Tondo	0	0	1	1
Ikwindo	0	0	1	3
Tighau	3	3	1	2
Mbungwi	4	12	1	2
Ibau	4	4	7	7
TOTAL	11	19	11	15
TONG-MENOE				
Mbenjeh	0	0	11	9
Ngwole	0	0	3	3
TOTAL	0	0	14	12
OTHER				
Long	0	0	1	2
Iyung	4	7	0	0
Bakwang	7	3	0	0
Mbelung	1	1	0	0
Nkum/Ibal-Oku	4	*	0	0
TOTAL	16	11	1	2

* Unmeasured

APPENDIX D

TOTAL NEW AND OLD FURNACES AND VOLUME ASSOCIATED DEBRIS:

OLD FURNACES/DEBRIS		NEW FURNACES/DEBRIS	
67	28587m^3	60	134918m^3

TOTAL FURNACES AND DEBRIS

127 163505m^3

AVERAGE VOLUME DEBRIS PER FURNACE TYPE :-

OLD FURNACE	NEW FURNACE
448m^3	2248m^3

AVERAGE HEIGHT OF DEBRIS HEAPS :-

OLD FURNACE	NEW FURNACE
2m	4m

AVERAGE SURFACE AREA COVERED:-

OLD FURNACE	NEW FURNACE
477m^2	1038m^2

TOTAL AREA

106696m^2

APPENDIX E
NDOP PLAIN POPULATION[8]

	1953	1925	1921	1913
BALI KUMBAT	6350	2724[9]	-	3200
BABUNGO[10]	4861	1798	3152	2800
BAMESSING	4459	2223	1583	1320
BAMUNKA	4200	830	556	1600
SMALL BABANKI	3900	-	-	2000
BAMBALANG	3892	831	999	2560
BABA	3225	1235	1224	1783
BABESSI	3098	1399	589	1600
BAFANJI	2615	1414	844	1800
BANGOLAN	2364	1048	459	1520
BAMALI	2096	734	446	1080
BAMUMKUMBIT	2072	967	611	1520

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[8]. Sources are the 1953 Nigerian Census; the Ndop plain Assessment Report, Drummond-Hay, 1925. Total population 15287; Imperial Census of 1921; German Census Bamenda Area 1913,
J. No. 1247/13 (Buea Archives). All figures are likely to be greatly underestimated. Adametz (1913) suggests a 10%-20% shortfall and Schmidt (1940) points out the very telling discrepancy between the 900 registered tax paying adults in BAMESSING and the 526 permanent market stalls used by local traders that represent only a third of the actual numbers of BAMESSING individuals selling in the marketplace.

[9]. Population figures for Bali Kumbat, Bali Gasu and Bali Gangsin taken from "An Assessment Report on the Bali Clan", W.E. Hunt, 1925.

[10]. These are the figures given in the 1925 assessment report. Drummond-Hay assumed that the figures for the earlier 1921 census for OKU (pop. 1338) and BABUNGO had been transposed but he may have been unaware of the 1913 figures. It is unlikely that both sets of figures should have suffered this chance misfortune. The problem here concerns what part of OKU is being counted in the earlier censuses.

APPENDIX E

NDOP PLAIN POPULATION

	1953	1925	1921	1913
BALI GASU	674	405	-	-
BALI GANGSIN	278	105	-	-

GERMAN CENSUS BAMENDA AREA 1913*

J. No. 1247/13 (BUEA ARCHIVES)

CHIEFDOM	POPULATION
BABAJU	4800
BAMENDJINDA	2080
BAMBULEWE	1520
BAMENYAM	1400
BALI GASHU	640
BALI BAGAM	1200
BAMUMKUMBIT	1520
BALI KUMBAT	3200
BAFANJI	1800
BAGHAM	6720
BAMBALANG	2560
BAMUNKA	1600
BAMALE	1080
BABESSI	1600
BANGOLAN	1520
BABA	1783
BABUNGO	2800
BAMESSING	1320
BABANKI TUNGO	2000
OKU	992
BAMBILI	1160
BAMUM	82456

*. A selection of population figures for the major chiefdoms and those in and surrounding the Ndop plain only, this is not the complete census.

CHIEFDOM	POPULATION
BALI NYONGA	29240*
BEKOM	21652
BANSSO	8000
BAFUT	8000
BANDENG (MANKON)	2800
BAFRENG	2600
BABANKI	1591
BAMBUI	1600
BUM	1947
ESU	4800
WUM	4000
WEH	800

The total population is given accordingly on the 20.6.1913 as 373155, but this includes the KENTU post population of 22900. Separate figures for adult males and females and children are only provided for a few of the chiefdoms but at the end of the census a breakdown for the total population is given as follows :-

ADULT MALES	ADULT FEMALES	CHILDREN
118665	106079	148411

*. Including so-called "vassal" chiefdoms.

APPENDIX F

DISTRIBUTION OF MAJOR CLAN[13] SEGMENTS

CLAN	WARDS					
	FINKWI	FINTENG	MBUKANG	MENOE	FUBUU	MEYOE
FOGHAI						
FON(83)	31	22	12	3	7	8
BA(34)	-	-	28	-	6	-
NSWI(18)	-	18	-	-	-	-
TIEFE TIFON(12)	-	4	8	-	-	-
FWANJOE(8)	-	-	-	7	1	-
TEH(4)	4	-	-	-	-	-
TI SONJONG(3)	-	-	2	-	1	-
AUTOCHTHONOUS						
NCHIAFOE(6)	3	2	-	-	1	-

[13]. Clans comprising three or more lineage branches.

DISTRIBUTION OF MAJOR CLAN[11] SEGMENTS

CLAN	WARD					
	FINKWI	FINTENG	MBUKANG	MENOE	FUBUU	MEYOE
MIGRANT[12]						
TIH(17)	14	3	-	-	-	-
SONJONG(16)	14	-	-	1	1	-
FWANNDI(3)	-	2	-	-	1	-
GANG(3)	2	-	-	-	-	1
KONGWIA(3)	3	-	-	-	-	-
WANSAI(3)	1	2	-	-	-	-
MIGRANT[13]						
SONGU(14)	13	-	-	-	1	-
YIGHAU(5)	3	1	-	-	1	-

[11]. See note 13.

[12]. Claiming origins from viable chiefdoms.

[13]. Origins claimed from surrounding defunct chiefdoms.

APPENDIX G

MAJOR CLANS : IRON WORKING OCCUPATIONS[14]

CLAN[18]	SMELTER[15]	TUNAA	SMITH[16]	FUELS[17]
FON	38	10	13	6
BA	24	2	-	3
NSWI	12	6	-	-
TIH	2	1	13	-
SONJONG	10	3	3	1
SONGU	1	-	13	-
TIEFE TIFON	9	2	-	-
FWANJOE	5	3	-	-
NCHIAFOE	6	1	-	1
TEH	3	1	-	-
YIGHAU	2	2	-	-
FWANNDI	3	-	-	1
GANG	3	-	-	-
WANSAI	3	-	-	-

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14. May include more than one occupation per individual lineage head.

15. Not including TUNAA, ie. foundry owners.

16. All recorded heads of smithing lineages were TUNAA EYOE, ie. owners of smithies.

17. Includes both raffia stem production for sale, and also preparation of woodchip fuel.

18. In descending order of magnitude.

APPENDIX H

DESCENT GROUP AND TITLE

CLAN[19]	5 CUPS	7 CUPS	NDIFWAN	WARD-HEAD
FON[20]	+		++++	++
BA	+			+
NSWI		+	++	+
TIH				
SONJONG		+	+++	+
SONGU				
TIEFE TIFON[21]	++			
FWANJOE		+		+
NCHIAFOE		+	++	
TEH			+	
TI SONJONG	+			+
YIGHAU			+	
WANSAI			++	
TUTOKWI	+			+
DISINGWIA		+		
BINITEE		+		
SONGHO		+		
TIFWANMUU	+			

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[19]. Listed in descending order of magnitude.

[20]. The FON is a member of the 5 CUPS title-set.

[21]. TIEFE TIFON is the sole member of the 1 CUP title-set but one 5 CUPS titleholder is included in his descent group.

APPENDIX I

OCCUPATIONAL CATEGORIES : TITLES

OCCUPATION	5 CUPS	7 CUPS	NDIFWAN	WARD-HEAD
TUNAA[22]	7[23]	5	4	8
NON-TUNAA	-	2	16	3
SMITHS	-	-	1[24]	-

APPENDIX J

DESCENT GROUP CATEGORY : TITLES

CATEGORY	5 CUPS	7 CUPS	NDIFWAN	WARD-HEAD
FOGHAI	6	3	7	7
AUTOCHTHONOUS	1	3	2	-
MIGRANT[25]	-	1	1	-
MIGRANT[26]	-	1	5	1

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[22]. Foundry owners.

[23]. Including FON and the "1 CUP" TIEFE TIFON.

[24]. In fact, a head of a smithing lineage branch of the clan of SONJONG, a TUNAA and Ward-head of FINKWI.

[25]. Origins claimed from defunct surrounding chiefdoms.

[26]. Origins claimed from viable chiefdoms.

APPENDIX K

DESCENT GROUP CATEGORY : OCCUPATIONS

CATEGORY[28]	SMELTER[27]	TUNAA	SMITH	TAPPER	OTHER
FOGHAI	91	24	13	48	39
AUTOCHTHONOUS	6	1	-	-	2
MIGRANT[29]	3	2	13	-	-
MIGRANT[30]	21	4	18	-	10
TOTALS	121	31	44	48	51

APPENDIX L

CLAN CATEGORIES : DEBRIS VOLUMES

CATEGORY	RECENT FURNACES	FOUNDRIES	OLD FURNACES	FOUNDRIES
FOGHAI	56027	20	7761	16
AUTOCHTH.	12241	5	1471	2
MIGRANT[31]	5053	3	2490	7
MIGRANT[32]	22957	11	5335	9

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[27]. Not including TUNAA, ie. foundry owners.

[28]. Major descent groups only.

[29]. Origins claimed from defunct surrounding chiefdoms.

[30]. Origins claimed from viable chiefdoms.

[31]. Clans claiming origins from surrounding defunct chiefdoms.

[32]. Origins claimed from viable chiefdoms.

APPENDIX M

FOUNDRY OWNERS : DEBRIS[33] VOLUMES AND TITLES

	DEBRIS[34]	TITLES
TISONJONG	275 (1732)	5 CUPS, WARD-HEAD.
NKESE	774	-
NSWIMBA	840	-
TUMUKOW	854	NDIFWAN.
JANSHOE	946 (448)	NDIFWAN.
GWETIKWIA	1024 (1023)	-[35]
GWISHO	1210	5 CUPS.
NCHIANBI	1275	-
YIGHAU	1350	-[36]
MUU	1375	TANTO.
TINYONKI	1399	-
BA	1856	Head of TIFWAN.
FWANLUNG	1884	-
BATE	1968	-
SONJONG	2030	7 CUPS, WARD-HEAD.
NCHIASONGWI	2071	-

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[33]. Debris recorded in association with recent clump furnace type.

[34]. Debris associated with old furnace type in brackets.

[35]. In certain versions of the foundation myth the paternal ancestor of GWETIKWIA is stated to be the original "owner" of the land of the chiefdom which was bought from him with the small red money beads known locally as "LOKAA'".

[36]. His paternal ancestor is associated with the introduction of the more recent clump furnace type.

FOUNDRY OWNERS : DEBRIS[37] VOLUMES AND TITLES

	DEBRIS[38]	TITLES
TONGU	2248	-
TUYIBIA	2264 (1463)	WARD-HEAD.
CHINDAU	2344	-
TUKO	2405 (1499)	VOESHUU.
TIBAN	2436	-
FWANGOLE	2653	-
TIKABIA	2862	-
FWANMBELE	2929	NDIFWAN.
WUNKENG	2984	-
TEH	3183	NDIFWAN.
TIFWANMUU	3234	5 CUPS.
NSWI	3247 (59)	7 CUPS, WARD-HEAD
WANGAI	3274	-
TITEBWOE	3354	-
TICHO'	3516 (112)	-

[37]. Debris recorded in association with recent clump furnace type.

[38]. Debris associated with old furnace type in brackets.

FOUNDRY OWNERS : DEBRIS[39] VOLUMES AND TITLES

	DEBRIS[40]	TITLES
FON SANGGE c.1875-1928	3651	FON
TISAH	3799	-
NCHIAFOE	4028	7 CUPS.
NSONGWI	4206	TUNGGINJONG.
SONGHO	4250	WARD-HEAD.
NJII	4419	-
TIBAN SAU	4558	-
NYANCHI	4576	-
TUTOKWI	6146 (75)	5 CUPS, WARD-HEAD

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[39]. Debris recorded in association with recent clump furnace type.

[40]. Debris associated with old furnace type in brackets.

APPENDIX N

DESCENT GROUPS : DEBRIS[41] VOLUMES

	FOUNDRIES	DEBRIS ([42])
FON	8	22120 (5056)[43]
NSWI	6	19987 (394)[44]
FWANJOE	7	11295
SONJONG	3	5868 (1136)[45]
YIGHAU	2	2124 (597)[46]
TUTOKWI	1	6146 (75)
SONGHO	1	4250
NCHIAFOE	1	4028
TIFWANMUU	1	3234
TEH	1	3183
BA	1	1856
TIEFE TIFON	1	1210
TISONJONG	1	275 (1732)[47]

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[41]. Debris associated with recent clump furnace type.

[42]. Debris associated with old furnace type in brackets.

[43]. Debris associated with 11 foundry sites.

[44]. 2 foundry sites.

[45]. 1 foundry site.

[46]. 1 foundry site.

[47]. 1 Foundry site only.

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APPENDIX O

MATERIAL ANALYSIS

Zacharias (1979) undertook a physical and chemical analysis[51] of smelting remains from the Ndop plain and nearby areas. The chemical composition of slag and ore samples was determined by quantitative X-ray Fluorescence analysis. Mineral contents present were determined by X-Ray Diffraction analysis. On the basis of visual examination slag was separated into tapped and untapped groups, which were further subdivided according to the chemical and mineral content analyses.

Tapped slag containing phosphorous and with a low manganese content were identified from BAFANJI, BAMENYAM and BABADJOU in association with goethite ore containing phosphorous and only little manganese. The contiguity of BAFANJI and BAMENYAM in the west of the Ndop plain and the exploitation of similar ore sources may account for this homogeneity. If the phosphorous contained in the ore were taken up in the iron produced in the smelt this iron may have been harder than that produced from an ore without a phosphorous content. However, this take up is dependent on the temperatures attained in the furnace (Ehrenreich, 1985) which is at present not known for these industries. Microscopic examination of ironware produced by this technology is required to confirm the notion[52] that the form of the ironware produced here may have been influenced by the hardness associated with a phosphorous content.

It is unclear to what extent slag was tapped from a BAFANJI furnace. The lack of flow marks on sample 0353(2) and the presence of blocks of slag in which old lengths of tuyère are found embedded[53] as would result from the slag cooling within the furnace in contact with the broken tuyères blocking the furnace mouth, all suggest practices similar to those of BABUNGO. Here slag might only be partially tapped at the end of the smelt in order to reduce the volume of the cake of slag and bloom that when cooled was removed intact through the mouth of the furnace. Sample 0353(1) has flow marks but it is unclear whether these occurred within the furnace, on the large sloping ash bed at the base, or as a result of tapping slag out of the furnace[54]. The mineral content of these two samples is

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[51]. Results of analyses undertaken by Guillemain, 1908, are also included in this discussion.

[52]. See Warnier (1983).

[53]. Warnier, fieldnotes.

[54]. It appears that it is possible for flow marks to be revealed in slag that was not even partially tapped (Todd and Charles, 1978). It is conceivable, also, that slag resulting from partial tapping was unconsciously

similar enough to suggest they are products of the same process, perhaps from different parts of the furnace.

The chiefdoms of BAFANJI and BAMENYAM are thought to have taken refuge in the period 1870-1888 with their larger neighbour to the south, BAGHAM. Only BAMENYAM retained a smelting tradition following resettlement at its original site, supplying blooms to BAFANJI smiths for forging. It is likely that this relationship began while the two chiefdoms were in refuge at BAGHAM. Smelting of iron in BAGAM has been observed and described by Malcom (1924). It appears that no true tapping of the slag occurred instead some 30 minutes[85] after the cessation of the process "the smelted mass is dragged down the sloping bed by means of a hook" and the slag separated from the iron and discarded. Accordingly, it seems likely that the technology employed at BAFANJI, BAMENYAM and BAGHAM differed but little from that of BABUNGO and that differences in mineral content and chemical composition are due to the nature of local ores.

The second group of tapped slag, but with a high manganese content, were identified from the IKWITOH and BAMBULEWE lake sites. The sample of slag (1352) and ore (1351) from the IKWITOH site were extracted from a saucer sized "cap" that overlay the ritual pit, at the base of the furnace, in which an unbaked short length of tuyère was found packed with earth. The structure (see above) of this furnace was such that it can not easily be linked to any of the iron working traditions current in the Grassfields at the end of the 19th century. The BAMBULEWE site was destroyed by road works[86] shortly after it was discovered and no further data are available.

The division of the so-called tapped slag group into those with low manganese and high manganese content does not appear useful in relation to the 19th century industries operative in the area. It is extremely important, however, that the IKWITOH furnace structure is associated with an ore type not apparently exploited, although available[87], elsewhere. Interestingly, the minute volume of long, stringy, fingerlike slag found in association with the IKWITOH furnace does appear from visual examination to represent a true slag tapping technology. Accordingly, the evidence of furnace structure, chemical composition of slag and associated ore, and evidence of tapping slag, sets this iron working

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selected for by those collecting the samples since these would tend to stand out as heavier with a higher iron content than untapped slag.

[85]. This seems too short a time for the slag to have solidified. It is unclear from his account whether Malcom was present throughout the smelting operation.

[86]. Warnier, fieldnotes.

[87]. Jeffreys, 1942.

tradition apart from more recent Grassfields industries and raises many questions regarding the early Iron Age in the region.

So-called untapped slag were divided into three groups. However, only the first group may truly represent an untapped slag working industry. This was associated with a lower iron content and relatively higher manganese, potassium and calcium contents that indicate resmelting of old slag. Indeed, sample 1152 was collected from an open hearth smelting furnace in OKU. Slag was not tapped from these furnaces but only removed as a block, from the base of the furnace, after a series of smelts had been carried out. The accounts of OKU iron workers indicate that the source of this slag for resmelting was, in fact, the group of so-called untapped slag characterised by a content of manganese higher than five percent.

This group was represented by samples taken from sites at IBAL OKU, NTURR and OKU. The chemical composition of OKU slag sample 1153(2), collected at a foundry site in OKU, is almost identical with the slag sample 1051 taken from surface smelting debris at NTURR. If the OKU sample had not been carried from NTURR and mislaid, which would seem unfortunate given the labour involved in trekking and carrying over the OKU massif, it may indicate that the industries that produced these samples were virtually identical. It appears that having exhausted deposits of old slag on the northern slopes of the OKU massif, close to their settlements, the OKU smelters ranged further afield. Indeed, in the first decades of this century the overspill of OKU settlement into the Ndop plain led to the exploitation of old slag deposits at IBAL OKU. The homogeneity of the slag samples from OKU, NTURR and IBAL OKU exploited by recent OKU smelters employing open bowl furnaces suggests that there may be some continuity between the iron working tradition that produced the old slag and the later resmelting tradition.

OKU dynastic traditions are unclear on this point[58] but do not necessarily preclude some form of continuity. Traditions from the chiefdoms of the northern Ndop plain suggest that the population of the settlements associated with the iron smelting sites of IBAL OKU and NTURR were absorbed into the centralised and compact chiefdoms that emerged in the area in the late 18th and early 19th centuries. At the technological level it appears that small clump furnaces smelting relatively rich limonite ores were replaced in centres such as BABUNGO and BAMESSING with larger and more developed furnace forms. Outside of these centres settlements and iron working were abandoned. To the north of the OKU massif small clump furnaces were replaced by a devolved open bowl smelting tradition resmelting slag produced by the earlier clump furnace tradition. The relative peace of the early colonial period enabled OKU smelters to extend their sphere of exploitation of old slag

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[58]. Chilver and Kaberry, 1968. Jeffreys,1961.

to southern slopes of the OKU massif overlooking the Ndop plain[59].

The final group of slag are those representing a smelting process where slag was generally untapped and exhibiting a manganese content of less than five percent. These samples derived from the smelting industries of BAMESSING, BAKWANG and both the older and more recent BABUNGO furnace types. The quite wide variation of the aluminum and silicon contents of these samples may reflect the recorded lack of homogeneity in volume and configuration of the associated furnaces[60]. This variation contrasts with the relative uniformity of the slag analyzed from the group represented by the BAFANJI/BAMENYAM industries that suggests not so much "a well controlled and reproducible process[61]" as a single and uniform iron working tradition.

This analysis of the chemical composition of ores and slag confirms much of what is already known from observation of furnace structures, accounts of the processes employed by those once active in iron smelting and oral tradition concerning changes in settlement. However, the low sampling rate upon which the analysis was based together with a lack of data on the minutiae of available ores and the range of variability within particular ore sources pose serious limitations on interpretation of the results. For instance, the BAMESSING/BAKWANG/BABUNGO industries grouped together on the basis of the chemical composition of the ores used does not tell us necessarily any more than that they were probably exploiting similar ore sources, which, given their geographical contiguity, is not unusual. This holds for the BAMENYAM/BAFANJI/BABADJOU group also, unless it could be demonstrated that they were exploiting ores with a phosphorous and low manganese content to the exclusion of available ores with no phosphorous and a relatively higher manganese content. If this were the case it would indicate a cultural tradition, distinct from that of the former group rather than the simple exigencies of geology.

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[59]. The NTURR site, at the head of the KWANSO valley, was, however, a major precolonial source for the OKU smelters.

[60]. Since in the absence of a deliberately added silica flux these elements are introduced through slagging off of tuyere and furnace wall. The rate at which this occurred would depend on the position, size and angle of entry of the tuyere and the proximity of the smelted mass to the furnace wall.

[61]. Zacharias, 1979.

Two further problems emerge in relation to the study of ores and attempts to estimate the efficiency[62] of the bloomery process. Firstly, the fact that the ores which are found within the foundry area are precisely those which the foundrymen have most probably rejected as being of insufficient quality for inclusion in the charge. For example, an analysis of an ore said to have been smelted in Babungo in the presence[63] of a German geologist in 1907 gave a result of a silica content of 56.72% and only c.20.72% iron. This "ore" is said to have produced a slag with a content of 52.37% iron which gives us a minus efficiency! This was, in effect, probably a discarded lump of quartz which if it had been loaded into the furnace as part of the charge would have passed through without undergoing any change. Since we don't find lumps of quartz enclosed in slag it is clear this represents the "tailings" or rejects by the smelter.

The second problem entailed in this analysis concerns the range of variability of the chemical composition of ore taken from the same source. In many instances the analysis of smelting debris from the Ndop plain gave a result in which the chemical composition of the ore examined could not account for that of the associated slag. In a few cases radical differences may be explained by the practice of different teams of smelters using different ores in the same furnace and discarding the debris on the same heap. This was often the case in BABUNGO where sets of unrelated smelting teams would use foundries in rotation and might use one or the other of two ore types or a combination of the two. Accordingly, given the low sampling rate any single sample of slag might represent the outcome of any one of three combinations of possible ore/s. In the majority of cases, however, it is likely that simple variation in the ore source is sufficient to account for discrepancies between the composition of ore and slag[64].

The results of the analysis by Zacharias are given below.

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[62]. Zacharias gives the efficiency of the BAMENYAM process as 35% and BAKWANG at 25%.

[63]. "Analyse eines Erzes, wie es bei meiner Anwesenheit in Babungo geschmolzen wurde". Guillemain, 1908.

[64]. David Killick, personal communication.

Tapped Slag with Phosphorous and low Manganese

	Slag	Slag	Slag	Ore	Slag
SAMPLE	0251	0353(1)	0353(2)	2654	2655
MgO	0.24	2.86	1.52	-	1.52
Al_2O	12.64	12.42	16.18	3.73	13.23
SiO_2	21.17	24.52	28.63	2.15	25.45
P_2O_5	0.85	0.13	0.24	3.34	0.79
K_2O	0.56	0.78	0.65	0.04	0.44
CaO	5.77	5.18	4.85	0.31	3.43
TiO_2	3.30	1.75	1.90	0.18	2.00
MnO	0.41	0.58	0.85	0.99	0.77
FeO	51.41	53.71	47.41	69.64	55.22
Traces	Cu, Zn	Cu, Zn	Cu, Zn, Zr	Cu, Zr	Cu, Zn, Zr

<u>Tapped Slag with high Manganese</u>

	Ore	Slag	Ore	Slag
SAMPLE	1351	1352	2151	2152
MgO	-	0.60	-	1.36
Al_2O_3	4.70	11.40	9.52	14.38
SiO_2	6.14	23.21	2.77	28.87
P_2O_5	-	-	-	-
K_2O	0.07	0.24	0.16	0.48
CaO	0.33	0.92	0.36	2.35
TiO_2	0.25	0.92	3.90	1.23
MnO	9.52	9.67	42.25	9.86
FeO	55.04	50.66	8.12	45.06
Traces	-	Cu, Zr	Ba, Cu, Zr, Zn	Cu, Zr

<u>Untapped Slag with low Iron Content</u>

	Slag	Slag
SAMPLE	2551(1)	1152
MgO	1.67	1.41
Al_2O_3	14.26	13.21
SiO_2	27.16	33.99
P_2O_5	-	-
K_2O	1.85	1.12
CaO	4.64	3.22
TiO_2	0.69	0.76
MnO	4.31	8.69
FeO	45.85	40.50
Traces	Cu,Zr	Cu,Zr

Untapped Slag with low Manganese

	Slag	Slag	Ore	Slag	Slag	Ore
SAMPLE	0753	G1[*5]	G2	235/28(3)	235/29	235/33
MgO	0.66	0.60	-	-	-	-
Al_2O_3	11.28	-	-	11.38	8.86	1.95
SiO_2	21.60	16.04	56.72	31.00	19.40	2.75
P_2O_5	-	0.36[**]	0.04	-	-	-
K_2O	0.44	-	-	0.86	0.52	0.04
CaO	1.27	4.22	-	2.28	2.29	0.27
TiO_2	0.59	-	-	0.61	0.49	0.10
MnO	4.57	2.37	0.88	1.92	3.85	1.75
FeO	61.56	52.37	20.57	45.74	54.46	70.28
Traces	Cu,Zn,	-	-	Cu,Zn	Cu,Zr	Cu,Zr
				Zr	Zr,Pb	

*5: The analysis of G1 and G2 are taken from Guillemain, 1908.

**: The potassium content of the slag would place BABUNGO in the BAMENYAM/BAFANJI group of slag and makes the designation of the latter group on this basis uncertain.

<u>Untapped Slag with High Manganese</u>

	Slag	Slag	Ore[47]
SAMPLE	1153(2)	1051	1252(1)
MgO	0.59	0.59	1.64
Al_2O_3	13.18	13.32	6.35
SiO_2	26.96	27.63	7.73
P_2O_5	-	-	-
K_2O	0.30	0.46	0.15
CaO	1.18	2.64	0.62
TiO_2	0.88	0.85	0.15
MnO	5.12	3.91	5.48
FeO	54.20	51.50	65.96
Traces	Cu, Zn, Zr	Cu, Zr	Cu, Zn, Zr

47. Partly reduced.

ORES

SAMPLE	2654	1351	2151	G2	235/33
MgO	-	-	-	-	-
Al_2O_3	3.73	4.70	9.52	-	1.95
SiO_2	2.15	6.14	2.77	56.72	2.75
P_2O_5	3.34	-	-	0.04	-
K_2O	0.04	0.07	0.16	-	0.04
CaO	0.31	0.33	0.36	-	0.27
TiO_2	0.18	0.25	3.90	-	0.10
MnO	0.99	9.52	42.25	0.88	1.75
FeO	69.64	55.04	8.12	20.57	70.28
Traces	Cu,Zr	-	Ba,Cu, Zn	-	Cu,Zr

KEY

SAMPLE	PROVENANCE
0251	BAFANJI, slag from furnace.
0353(1)	"
0353(2)	"
2654	BAMENYAM, ore from ground.
2655	" , slag from heap.
1351	IKWITOH, ore from "cap" in furnace base.
1352	" , slag " " " " " .
2151	BAMBULEWE, ore from road site.
2152	" , slag plug from tuyère interior.
2551(1)	MANKON, slag.
1152	OKU, slag from open-hearth furnace site.
1153	OKU, slag collected from ground.
1051	NTURR, slag plug from debris scatter.
1252(1)	IBAL-OKU, part reduced ore, debris scatter.
0753	BABUNGO, slag from old furnace heap.
G1	" , slag from recent furnace heap.
G2	" , ore (rejected) from recent furnace.
235/28(3)	BAMESSING, slag.
235/29	" , old slag from bowl furnace.
235/33	" , ore from nearby hillside.

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ABBREVIATIONS

ASA : Association of Social Anthropologists of the Commonwealth

CNRS : Centre National de la Recherche Scientifique

J.A.H. : Journal of African History

J.A.L : Journal of African Languages

J.R.A.I. : Journal of the Royal Anthropological Institute

NAC : National Archives of Cameroon, Buea

NADA : Native Affairs Dept. Annual

ORSTOM : Office de la Recherche Scientifique et Technique d'Outre-Mer.

OUP : Oxford University Press

SIL : Summer Institute of Linguistics